**BRUCE A. MOYER**

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Oak Ridge, TN 37831-6119 <http://orcid.org/0000-0001-7484-6277>

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## BIOGRAPHY

Bruce Moyer is a Corporate Fellow at Oak Ridge National Laboratory (ORNL), specializing over a 43-year career in both fundamental and applied aspects of separation science and technology, especially on the chemistry of solvent extraction and ion exchange. His more than 250 open-literature publications include 175 journal articles, 17 patents, 8 patent applications pending, 6 edited books, 15 book chapters, 30 peer-reviewed proceedings articles, and 26 open-literature ORNL reports. He earned his BS degree summa cum laude with chemistry honors from Duke University in 1974 and a PhD in inorganic chemistry from the University of North Carolina at Chapel Hill in 1979 under the direction of Prof. Thomas J. Meyer. His graduate work dealt with fundamental mechanisms of redox catalysis, oxygen atom transfer, and proton-coupled electron transfer. In 1979, he joined the staff at ORNL and has worked on a variety of problems in separations chemistry, always with an eye on incorporating principles of molecular recognition. In addition to his recent duties as Group Leader, Chemical Separations, in the ORNL Chemical Sciences Division, Dr. Moyer has provided leadership for three programs for the US Department of Energy: Principles of Chemical Recognition and Transport in Extractive Separations (Office of Science), the Sigma Team for Advanced Actinide Recycle (Office of Nuclear Energy), and the Diversifying Supply Focus Area of the Critical Materials Institute, a USDOE Energy Innovation Hub (Office of Energy Efficiency and Renewable Energy). He has also provided leadership for the chemical development of the Caustic Side Solvent Extraction (CSSX) process implemented at the Savannah River Site for cesium removal from tens of millions of gallons of legacy nuclear waste, winning the Secretary of Energy's Award in 2013. Dr. Moyer also serves as Co‑editor of the journal Solvent Extraction and Ion Exchange as well as the book series Ion Exchange and Solvent Extraction.

Dr. Moyer’s most successful technology application is the development of the CSSX and Next Generation CSSX processes. CSSX is operating successfully in the $2B Salt Waste Processing Facility at the USDOE Savannah River Site, and both processes previously operated sequentially for 11 years in the Modular CSSX Unit at the Savannah River Site, processing over 7 million gallons of high-level waste. Dr. Moyer’s 17 patents range from solvent extraction of cesium for nuclear-waste cleanup to supported liquid membrane systems and novel anion-exchange resins. Dr. Moyer became a Fellow of the American Association for the Advancement of Science in 2019 and has received a number of awards: 2019 Glenn T. Seaborg Actinide Separations Award, 2017 R&D 100 Award for ACE: The Ageless Aluminum Revolution; 2013 US Department of Energy Secretary's Award for Salt Waste Technologies Team; 2011 Council of Chemical Research Collaboration Award for Development and Implementation of High-Level Salt-Waste Processing Technology (team award); R&D 100 Award in 2004 for A Highly Selective, Regenerable Perchlorate Treatment System; UT-Battelle Technical Achievement Award in 2000 for Contributions to the Development of Novel Resin Regeneration Techniques; three Lockheed Martin Research Corporation Achievement awards in 1999—Leadership Award, Development Award (novel bifunctional anion exchange resin), and Development Award (novel process for cesium separation from waste). Recently, he co-chaired and co-edited the 2022 workshop report, *Innovative Separations Research and Development Needs for Advanced Fuel Cycles* and served on the National Academy of Science Committee on *A Research Agenda for a New Era in Separations Science* in 2018–2019. He also served as the Technical Chair of the 2008 International Solvent Extraction Conference (ISEC '08) and Editor-in-Chief of the proceedings, and in 2011 he served as member of the Advisory Committee, Program Chair for Nuclear Separations, and Co-editor of the proceedings of ISEC 2011.

## EDUCATION

PhD, Inorganic Chemistry, University of North Carolina at Chapel Hill, 1979

BS, Chemistry, Summa Cum Laude, Chemistry Honors, , Duke University, Durham, NC, 1974

## DISSERTATION

B. A. Moyer, "Redox Properties, Atom Transfer Reactions, and Catalytic Processes of the Aquo/Oxo System (bpy)2pyRu(OH2)2+/(bpy)2pyRuO2+," Ph.D. Dissertation, University of North Carolina at Chapel Hill, Chapel Hill, NC (1979).

## AREAS OF EXPERTISE

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| --- | --- | --- |
| actinides and lanthanidesanion bindingchemical recognitioncomputer modelingcoordination chemistrycritical materials | crown ethers & calixarenesenvironmental remediationinorganic chemistryion exchangemacrocyclic compoundsnuclear fuel cycle | radiochemistryseparations chemistrysolution thermodynamicssolvent extractionwaste treatmentwater purification/desalination |

## OTHER INTERESTS

redox chemistry and chemical kinetics

magnetic nanoparticles

## RESEARCH AND PROFESSIONAL APPOINTMENTS

07/2016–present Corporate Fellow, Oak Ridge National Laboratory (ORNL)

02/1987–9/2020 Group Leader, Chemical Separations, Chemical Sciences Division, ORNL

02/1990–09/1991 Group Leader, Transuranium Research Laboratory, Chemistry Division, ORNL

11/1983–02/1987 Research Staff Member, Separations Chemistry, Chemistry Division, ORNL

09/1979–10/1983 Research Staff Member, Separations Chemistry, Chemical Technology Division, ORNL

05/1974–08/1974 Resident Research Chemist, E.I. DuPont de Nemours & Co., Wilmington, Delaware

05/1973–08/1973 Summer Student, Martin Marietta Corp., Orlando, Florida

05/1971–08/1971 Summer Student, Martin Marietta Corp., Orlando, Florida

05/1970–08/1970 Summer Student, Martin Marietta Corp., Orlando, Florida

## PROFESSIONAL SOCIETIES AND SERVICE

2023 Reviewer for National Academy of Science, Board on Chemical Sciences and Technology

2022– International Committee for Solvent Extraction

2020–present Canadian Institute of Mining

2018–2019 National Academy of Science, Board on Chemical Sciences and Technology, Committee on A Research Agenda for a New Era in Separations Science

2015–present American Association for the Advancement of Science, member

2014–present American Nuclear Society, member

1980–present American Chemical Society (ACS), member

1991–present ACS Nuclear Division, member

1988–present ACS Industrial & Engineering Division, Separation Science and Technology Subdivision, member

2014 Chair, Lind Lecture committee, ACS East Tennessee Section

2007–2010 Canvassing Committee for the ACS Award in Separation Science and Technology

1990–2003 Executive Committee, ACS Industrial & Engineering Division, Separation Science and Technology Subdivision

1999–2001 ACS Awards Committee, Separation Science and Technology.

1997 Past-Chair, ACS Industrial & Engineering Division, Separation Science and Technology Subdivision (Elected Office)

1996 Lind Lecture Committee, East Tennessee Section, American Chemical Society

1996 Chairman, ACS Industrial & Engineering Division, Separation Science and Technology Subdivision (Elected Office)

1995 Chairman Elect, ACS Industrial & Engineering Division, Separation Science and Technology Subdivision (Elected Office)

1994 Vice Chairman Elect, ACS Industrial & Engineering Division, Separation Science and Technology Subdivision (Elected Office)

1994 Lind Lecture Committee, East Tennessee Section, American Chemical Society

1991–1993 Secretary/Treasurer, ACS Industrial & Engineering Division, Separation Science and Technology Subdivision (Elected Office).

1980–1982 ACS Inorganic Chemistry Division, member

## HONORS AND AWARDS

2023 WM2023 Conference oral paper awarded “Superior” rating “Next-Generation Solvent for Caustic-Side Solvent Extraction of Cesium from Supernatant Tank Waste”

2023 Society for Technical Communication 2022 Alliance Competition award of Excellence, workshop report “Innovative Separations R&D Needs for Advanced Fuel Cycles”

2022 Battelle Distinguished Inventor award

2019 Glenn T. Seaborg Award in Actinide Separations

2019 Fellow, American Association for the Advancement of Science

2017 R&D 100 Award, for ACE: The Ageless Aluminum Revolution

2013 Secretary of Energy's Achievement Award, Salt Waste Disposal Technologies Team

2013 ORNL Significant Event Award, for successful hub proposal with Ames Lab on critical materials

2011 2011 Council of Chemical Research Collaboration Award, for Development and Implementation of High-Level Salt-Waste Processing Technology (team award, LEADER)

2008 USDOE Outstanding Mentor Award

2004 R&D 100 Award, for Highly Selective, Regenerable Perchlorate Treatment System

2002 Outstanding Team Performance Award, for Savannah River Site Salt Processing Project, Pacific Northwest National Laboratory

2002 Battelle S&T Technical Challenge Award, for idea on chiral separation method

2001 Chemical and Analytical Sciences Division Certificate of Appreciation Award, for development of a novel method for regeneration of ion-exchange resins

2001 Chemical and Analytical Sciences Division Certificate of Appreciation Award, for development of the CSSX process for removal of radioactive cesium from tank waste stored at the Savannah River Site

2000 UT-Battelle Technical Achievement Award, for developing novel resin regeneration techniques

2000 Best Presentation, for Salt Processing Project, Tanks Focus Area, FY 2000 Annual Program Review

2000 International Who's Who of Professionals

1999 Lockheed Martin Technical Achievement Award, for team achievement in the invention, development, and testing of a novel process for cesium separation from waste; ORNL Chemical and Analytical Sciences Division Award, for same

1999 Lockheed Martin Valuable Invention Award, for improvements to CSEX process

1998 ORNL Chemical and Analytical Sciences Division Leadership Award, R&D Accomplishment, for exemplary performance in research leadership, team building, and program development to bring the separations chemistry program to national prominence

1998 ORNL Chemical and Analytical Sciences Division Technical Achievement Award, Development Accomplishment, for development of a novel bifunctional anion exchange resin for selective removal of pertechnetate ion from groundwater

1996 Marquis Who's Who in Science and Engineering; American Men and Women of Science

1996 ORNL Chemical and Analytical Sciences Division Technical Achievement Award, for invention on novel methodology to remove fission product technetium from legacy DOE radioactive wastes

1994 Martin Marietta Energy Systems’ Technology Transfer Award

1990 Martin Marietta Energy Systems’ Special Achievement Award

1986 Martin Marietta Energy Systems’ Significant Accomplishment Award, for the development of a selective solvent extraction system for copper

1983 David J. Evans Award (3rd International Symposium on Hydrometallurgy)

1974 Graduated summa cum laude and with Chemistry honors from Duke University

1973 Phi Beta Kappa (Duke University)

1973 Phi Lambda Upsilon (Honorary Chemistry Fraternity, Duke University)

1971 Phi Eta Sigma (Honorary Freshman Fraternity, Duke University)

1970 Martin Marietta Scholarship; Elk's Club Scholarship

## EDITORIAL SERVICE

2021–2022 Co-editor, "Innovative Separations R&D Needs for Advanced Fuel Cycles" workshop report, Feb. 2022. https://www.osti.gov/biblio/1844866

2002–present Co-editor-in-Chief, *Solvent Extraction and Ion Exchange* (journal)

2005–present Co-editor, *Ion Exchange and Solvent Extraction* (book series)

2015 Guest Co-editor, *Environmental Science and Technology* (special issue on critical materials separations)

2008 Editor-in-Chief, *Proceedings of the International Solvent Extraction Conference ISEC 2008* (1600 pages)

2003–2005 Editorial Advisory Board, *Industrial & Engineering Chemistry Research* (journal)

1994–2012 Editorial Board, *Hydrometallurgy* (journal)

1993–2001 Associate Editor, *Solvent Extraction and Ion Exchange* (journal)

1988–1993 Editorial Board, *Solvent Extraction and Ion Exchange* (journal)

## EXTERNAL PROFESSIONAL ACTIVITIES

2023 Invited presentation: Lecture for Critical Materials Institute Short Course “Rare Earth Elements: Mine to Magnet and Beyond”

2021–2022 Scientific Advisory Board, Center for Sustainable Separations of Metals, Univ. of Pennsylvania.

2022 Co-editor, "Innovative Separations R&D Needs for Advanced Fuel Cycles" workshop report, Feb. 2022. https://www.osti.gov/biblio/1844866

2021 Chair, "Innovative Separations R&D Needs for Advanced Fuel Cycles" workshop, Aug. 30–Sep. 1. [Virtual]

2021 Plenary lecture, SESTEC 2020. Invited lecture NRCan webinar. Invited lecture, Univ Pennsylvania, Center for Sustainable Separation of Metals. [Virtual]

2021 Moderator for Master Class on "Full-Value Mining," panel discussion, Prospectors and Developers Association of Canada (PDAC) Convention, Mar. 8–11, 2021. [Virtual]

2020 Next Generation Solvent Formulation for the Salt Waste Processing Facility, Independent Technical Review. [Virtual]

2020–2021 Research Advisory Committee and Challenge Area Lead for the National Alliance for Water Innovation (NAWI)

2020– Scientific Advisory Board, Center for Nanotechnology-Enabled Water Treatment (NEWT), NSF Nanosystems Engineering Research Center at Rice University.

2019 Book Editor, Changing the Landscape in Solvent Extraction, Vol. 23, *Ion Exchange and Solvent Extraction*, CRC Press.

2019– External Advisory Board, Center for Materials for Water and Energy Systems (M-WET), Energy Frontier Research Center at UT-Austin.

2018 Symposium co-organizer, Symposium on Extractive Metallurgy, Internat. Conf. Coordination Chem., Sendai.

2018 Keynote presentations (2): Symp. Sep. Sci. Technol. Energy Appl.; SERMACS 2018.

2018 Invited presentations (4): Internat. Symp. Macrocyclic and Supramol. Chem. (ISMSC 2018); Internat. Conf. Coordination Chem., Sendai; Extraction 2018, Ottawa (2).

2017 Invited presentations (5): Col. School of Mines, Goldschmidt 2017, EuroMat 2017, MS&T 2017, 2017 Internat. Symp. Sep. Sci. Technol., Kitakyushu

2017 Keynote presentation: ISEC 2017

2016 Keynote Lecture, Atalante 2016. Invited Plenary lecture, Symp. Sep. Sci. Technol.

2016 Invited presentations: AIChE Kx Chapter; Japan Seminar on Separation Science and Technology; ACS Spring Nat. Mtg.; Argus Rare Earth Summit; ACS Fall Nat. Mtg.

2016 Plenary presentation: Symp. Sep. Sci. Technol. for Energy Applications, Gatlinburg, TN

2015 Invited presentations (5): Washington State U; Pacifichem 2015; Prometia seminar; Ecosystemes Recycling Processes Symp; MARC X

2014 Invited presentations (7): ACS Spring Nat. Mtg.; Rare Earth Res. Conf.; ACS Fall Nat. Mtg.; Symp. Sep. Sci. Technol.; Clemson Univ.; BASF (2)

2014 Plenary presentation: Internat. Solvent Extraction Conf. ISEC 2014

2014 Symposium co-organizer: Global Stewardship of Critical Materials, Fall ACS Nat. Mtg.

2013 Invited presentations (3): ORNL; Florida International University (2).

2013 Book Editor, Supramolecular Aspects of Solvent Extraction, Vol. 21, *Ion Exchange and Solvent Extraction*, CRC Press

2012 Co-organizer, symposium “Fundamentals and Applications in Hydrometallurgy: From the Molecule to the Process,” 243rd ACS Nat. Mtg., March 25–29, 2012, San Diego, CA.

2012 Invited presentations (3): ACS Spring Nat. Mtg. (2); Presidential Symposium, ACS Fall Nat. Mtg.

2011 Plenary Lecture, Internat. Solvent Extraction Conf. ISEC 2011

2011 Invited presentation: Symp. Sep. Sci. Technol. Energy Appl.

2011 Organizing Committee and Session Chair, Nuclear Separations Technologies Workshop

2011 Consultant, Savannah River Site Salt Waste Processing

2010–2011 International Solvent Extraction Conference (ISEC 2011) Advisory Committee; Program Chair, Nuclear Section; Co-editor, Proceedings

2010 Book Editor, Vol. 19, *Ion Exchange and Solvent Extraction*, CRC Press

2009 Invited presentation: Symp. Sep. Sci. Technol. Energy Appl.

2009 Consultant, Savannah River Site Salt Waste Processing

2008 Invited presentations (3): Symp. on SS&T; SW ACS Regional Mtg.; Macrocycle Symp.

2007 Co-organizer of the symposium Nuclear Fuel Reprocessing, ACS Nat. Mtg.

2007 Invited presentations (2): Calix 2007; Symp. on Anion Coordination, ACS Fall Nat. Mtg.

2007 Advisory Board on Separations and Actinide Science at Idaho National Lab

2006 Invited presentation: BES Workshop on Advanced Nuclear Energy Systems

2005 Invited presentations (2): Pacifichem 2005; Symp. Sep. Sci. Technol. Energy Appl.

2004 Invited presentations (3): Symp. on Anion Binding, ACS Spring Nat. Mtg., Daryle Busch symposium, ACS Fall Nat. Mtg.; Univ. of Texas, Austin.

2003–2004 Executive Committee member of the Separation Science and Technology Subdivision, Industrial and Engineering Division, American Chemical Society

2003 Invited presentations (2): DOE Separations Workshop, EMSP Principal Investigator Workshop

2002–2008 Chair, Technical Program Committee, International Solvent Extraction Conference (ISEC 2008)

2002 Keynote lecture at the 2002 International Solvent Extraction Conference

2002 Invited lectures (8): Univ. of California, Berkeley; USDOE Mission Acceleration Initiative Technology Demonstration Workshop; Univ. of Indiana, Champaign; International Macrocyclic Chemistry Symposium; DECHEMA Supramolecular workshop, Frankfurt; Univ. Edinburgh; Technical Univ. Dresden; Oak Ridge National Laboratory Chemical Sciences Division

2001 Gordon Conference Invited Speaker, Inorganic Chemistry

2001 Keynote lecture, Environmental Management Science Program Symposium, ACS Fall Nat’l Mtg.

2001 Plenary address, Environmental Management Science Program High-Level Waste Workshop

2000 Co-organizer, symposium "Equilibrium Modeling of Solution Speciation in Separations," Spring ACS National Meeting.

2000 Invited presentations (6): ACS Spring National Meeting; Environmental Management Science Program Workshop; Syracuse University; Virginia Tech; Pacifichem 2000 (2).

1999 Invited presentations (6): ACS Spring National Meeting; ACS Fall National Meeting (Tutorial); Japan Atomic Energy Research Institute (3); The Second Japanese-Russian Seminar on Technetium.

1999 Chairman, session at ACS Fall National Meeting.

1999 Co-organizer, symposium "Chemical Recognition Phenomena in Separations," Southeast Regional ACS Meeting.

1999 Visiting Scientist, Japan Atomic Energy Research Institute, Tokai-Mura, Ibaraki-Ken, Japan.

1998 Invited presentations (3): EPA Metals Adsorption Workshop; Brigham Young University; University of Oklahoma.

1998 Chairman, session on separations, and plenary participant, DOE EMSP Scientific Workshop.

1998 Invited book chapter published in *Metal Ion Separation and Preconcentration*

1997–1999 Chairman, User Advisory Committee for Research Environments of the Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory

1997 Invited presentations (6): 5th Chemical Congress of North America; AAAS Annual Meeting; 1997 Green Chemistry and Engineering Conf.; Argonne National Laboratory; ACS Annual Fall National Meeting; Symp. on Molecular Sciences for the Environment, Pacific Northwest National Laboratory.

1997 Invited book chapters (2) published in *Ion Exchange and Solvent Extraction*, Vol. 13; *Supramolecular Chemistry of Anions*

1996 Invited presentations (3): AAAS Annual Mtg.; Univ. of Alabama, Birmingham; 20th Actinide Separations Conference.

1996 Invited book chapter published in *Comprehensive Supramolecular Chem.* series

1995–1999 Advisory Committee of the Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory

1995 Invited presentations (3): American Filtration and Separations Society Annual Meeting, Nashville, TN; Fifth International Conference on Radioactive Waste Management and Environmental Remediation, Berlin, Germany; Technical University of Dresden, Germany.

1995 Session Co-Chairman: Solvent Extraction Session of the Ninth Symp. on Separation Science and Technology for Energy Applications, Gatlinburg, TN

1994 Session Chairman (3): XIX International Symposium on Macrocyclic Chemistry, Lawrence, KS; Spectrum '94, Atlanta, GA; and Symposium on Emerging Technologies in Hazardous Waste Management IV, Atlanta, GA

1994 Invited presentations (3): Battelle Pacific Northwest Laboratories, Richland, WA; Los Alamos National Laboratory, Los Alamos, NM; Cadarache, France.

1993 Plenary Lecturer: Internat. Symp. on Metal Ions in Solution, South Africa

1993 Invited presentations (6): Atomic Energy Corporation of South Africa, Pretoria, SA; Univ. of the Witwatersrand, Johannesburg, SA; JCI Minerals Processing Research Laboratories, Johannesburg, SA; Univ. of Port Elizabeth, Port Elizabeth, SA; Univ. of Natal, Durban, SA; First BES/DOE Separations Research Conf., Seattle, WA.

1993 Session Co-Chairman: Ion Exchange Session of the Eighth Symp. on Separation Science and Technology for Energy Applications, Gatlinburg, TN

1992 Invited presentations (3): ACS Nat. Mtg., San Francisco; AIChE Nat. Mtg., New Orleans; ACS Southwest Regional Mtg., Lubbock

1992 Technical Support Group, Efficient Separations and Processes Integrated Program, Office of Technology Development, USDOE Office of Environmental Restoration and Waste Management

1991 Invited presentations (3): First Hanford Separation Science Workshop, Richland, WA; ACS Nat. Mtg., Atlanta, GA; AIChE Nat. Mtg., Pittsburgh, PA

1991 Session Co-Chairman: Ion Exchange Session of the Seventh Symp. on Separation Science and Technology for Energy Applications, Knoxville, TN

1990 Invited presentation: Inorganic Chemistry Division Awards Symp. in honor of Thomas J. Meyer, ACS Nat. Mtg., Boston, MA

1989 Session Co-Chairman: Solvent Extraction Session of the Sixth Symp. on Separation Science and Technology for Energy Applications, Knoxville, TN

## RECENT INTERNAL PROFESSIONAL ACTIVITIES

2017 Search committee for Director for Physial Sciences Directorate

2017 Chair, Discovery Science Initiative Review Committee, Laboratory Directed Research and Development program

2016 Chair, UT-Battelle Awards Night selection committee for Research Accomplishment Award and Distinguished Researcher Award

## GRADUATE STUDENT DISSERTATIONS ADVISED

1. A. A. Kriger, "Metal Ion Complexation Using Solvent Impregnated Resins and Bifunctional Interpenetrating Polymer Networks," M.S. Dissertation, Dept. of Chemistry, Univ. of Tennessee, Knoxville, TN, May 1993. (In collaboration with Prof. Spiro D. Alexandratos.)
2. A. K. Batra, "Selective Extraction of Cesium Using Crown Ethers," M.S. Dissertation, Dept. of Civil and Environmental Engineering, Univ. of Tennessee, Knoxville, TN, December 1995. (In collaboration with Prof. R. Bruce Robinson.)
3. S. Kilambi, "Facilitated Transport of Sodium Perrhenate Across Supported Liquid Membranes," Ph.D. Dissertation, Dept. of Chemistry, Univ. of Tennessee, Knoxville, TN, May 1996. (In collaboration with Prof. R. Bruce Robinson.)
4. C. K. Chambliss, "Redox-Recyclable Extraction and Recovery. A New Strategy for the Separation and Recovery of Aqueous Ions," Ph.D. Dissertation, Dept. of Chemistry, Colorado State Univ., Fort Collins, CO, May 1998. (In collaboration with Prof. S. H. Strauss.)
5. M. A. Klingshirn, "Synthesis, Characterization and Performance Studies of Novel Anionic and Cationic Ion Exchange Resins," M.S. Dissertation, Dept. of Chemistry, Univ. of Tennessee, Knoxville, TN, December 1999. (In collaboration with Prof. Spiro D. Alexandratos.)
6. T. G. Levitskaia, "Investigation of Liquid-Liquid Distribution Behavior of Alkali Metal Ions in Polymer Inclusion Membrane and Extraction Separation Systems," Ph.D. Dissertation, Brigham Young Univ., Provo, UT, December 1999. (In collaboration with Prof. J. D. Lamb.)
7. C. A. Seipp, Guanidinium-Based Receptors for Anion Separations. Doctor of Philosophy, The Univ. of Texas at Austin, May 2017. (In collaboration with Prof. J. L. Sessler.)
8. N. J. Williams, Ion Separations: Achieving Selectivity Through Rational Design of Extractants for Liquid-Liquid Extraction Systems. Univ. of Tennessee, Knoxville, May 2017. (In collaboration with Prof. S. Dai.)
9. H. Fargher, Univ. of Oregon, Physical Organic Methods in the Design of Selective Supramolecular Anion Hosts. Univ. of Oregon, August 2021. (In collaboration with Prof. D. W. Johnson.)

## POSTDOCS ADVISED

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| C. J. BormanN. P. BessenD. M. BrighamS. A. BryanC. K. ChamblissZ. ChenG. DasL. H. DelmauY. DengN. C. Duncan | J. D. Einkauf L. R. EllerC. J. FowlerJ. W. FreiderichA. GakhM. G. GorbunovaM. R. HealyH.-A. KangK. KavallieratosS.-H. KimT. G. Levitskaia | G. J. LumettaM. A. MomenA. M. PanagopoulosB. D. RoachR. A. SachlebenC. A. SeippY. SunE. WanagasekaraN. J. Williams |

## PUBLICATIONS

Career totals: 174 journal articles; 6 edited books; 15 book chapters; 29 refereed proceedings papers; 26 open-access reports; 30+ limited-access reports; 16 patents granted; 9 pending patent applications.

### Journal Articles

1. Moyer, B. A.; Meyer, T. J. Oxobis(2,2'-bipyridine)pyridineruthenium(IV) Ion. *J. Am. Chem. Soc.* **1978,** *200*, 3601-3603.
2. Moyer, B. A.; Meyer, T. J. Reduction of Nitrate Ion by Aquobis(2,2'‑bipyridine)pyridineruthenium(II) Ion. *J. Am. Chem. Soc.* **1979,** *101*, 1326-1328.
3. Moyer, B. A.; Thompson, M. S.; Meyer, T. J. Chemically Catalyzed Net Electrochemical Oxidation of Alcohols, Aldehydes, and Unsaturated Hydrocarbons Using the System (trpy)(bpy)Ru(OH2)2+/(trpy)(bpy)RuO2+. *J. Am. Chem. Soc.* **1980**, *102*, 2310–2312.
4. Moyer B. A.; Meyer, T. J. Properties of the Oxo-Aquo System Oxobis(2,2'‑bipyridine)pyridineruthenium(II)/Aquobis(2,2'-bipyridine pyridineruthenium(IV). *Inorg. Chem.* **1981**, *20*, 436–444.
5. Moyer, B.A.; Sipe, B.K.; Meyer, T. J. Oxygen Transfer in the Oxidation of Triphenylphosphine by Oxobis(2,2'-bipyridine)pyridineruthenium(IV)," *Inorg. Chem.* **1981,** *20*, 1475-1480.
6. Binstead, R. A.; Moyer, B. A.; Samuels, G. J.; Meyer, T.J. Proton‑Coupled Electron Transfer Between Aquobis(2,2'-bipyridine)pyridineruthenium(II) Ion and Oxobis(2,2'‑bipyridine)pyridineruthenium(IV) Ion. A Solvent Isotope Effect (kH2O/kD2O) of 16.1. *J. Am. Chem. Soc.* **1981,** *103*, 2897-2899.
7. Moyer, B. A.; McDowell, W. J. Factors Influencing Phase Disengagement Rates in Solvent Extraction Systems Employing Tertiary Amine Extractants," *Sep. Sci. Technol.* **1981,** *16,* 1261‑1289.
8. McDowell, W.J.; Michelson, D. C.; Moyer, B. A.; Coleman, C. F. A Source of Solvent Extraction Information. *Solvent Extr. Ion Exch.* **1982,** *1*, 1-4.
9. Moyer, B. A.; McDowell, W. J. Drop-Interface Coalescence Rate in Tertiary Amine Solvent Extraction. *Sep. Sci. Technol.* **1983,** *18*, 1535-1562.
10. Thompson, M.S.; Giovanni, W. F.; Moyer, B. A.; Meyer, T.J. A Novel Electrocatalytic Procedure for the Oxidation of Alcohols, Aldehydes, Cyclic Ketones, and C-H Bonds Adjacent to Olefinic or Aromatic Groups. *J. Org. Chem.* **1984,** *49*, 4972-4977.
11. McDowell, W. J.; Moyer, B. A.; Case, G. N.; Case, F. I. Selectivity in Solvent Extraction of Metal Ions by Organic Cation Exchangers Synergized by Macrocycles: Factors Relating to Macrocycle Size and Structure. *Solvent Extr. Ion Exch.* **1986,** *4*, 217-236.
12. Moyer, B. A.; McDowell, W. J.; Ontko, R. J.; Bryan, S. A.; Case, G. N. Complexation of Strontium in the Synergistic Extraction System Dicyclohexano-18-crown-6, Versatic Acid, Carbon Tetrachloride. *Solvent Extr. Ion Exch.* **1986,** *4,* 83-93.
13. Moyer, B. A.; Price, C. O.; McDowell, W. J. Alkane-Insoluble Trialkylammonium Double Salts Involving the Dodecamolybdophosphate Anion. I. Model Studies Using Trioctylamine in Dodecanol-Modified Nonane. *Hydrometallurgy* **1986,** *16,* 177-195.
14. Moyer, B. A.; McDowell, W. J. Alkane-Insoluble Trialkylammonium Double Salts Involving the Dodecamolybdophosphate Anion. II. Effect of Amine Structure on Third Phase Formation. *Sep. Sci. Technol.* **1987,** *22*, 417-445.
15. Moyer, B. A. Alkane-Insoluble Trialkylammonium Double Salts Involving the Dodecamolybdophosphate Anion. III. Nature of a Liquid Third Phase. *Solvent Extr. Ion Exch.* **1987,** *5*, 195-203.
16. Bryan, S. A.; McDowell, W. J.; Moyer, B. A.; Baes, Jr., C. F.; Case, G. N. Spectral Studies and Equilibrium Analysis of the Didodecylnaphthalene Sulfonic Acid, Dicyclohexano-18-Crown-6, Sr2+ Extraction System. *Solvent Extr. Ion Exch.* **1987,** *5*, 717-738.
17. Moyer, B. A. Trialkylammonium Mixed Salts in Amine Extraction Systems. Infrared Study of the Salts (R3NH)3[PMo12O40] and (R3NH)Cl and Mixed Salt (R3NH)3[PMo12O40].3(R3NH)Cl. *Solvent Extr. Ion Exch.* **1988,** *6*, 1-37.
18. Moyer, B. A.; Westerfield, C. L.; McDowell, W. J.; Case, G. N. Selective Extraction of Cu2+ and Ag+ Ions from Sulfuric Acid by Synergistic Combinations of Tetradentate Thia Macrocycles with Didodecylnaphthalene Sulfonic Acid. *Sep. Sci. Technol.* **1988,** *23*, 1325-1344.
19. Baes, Jr., C. F.; Moyer, B. A. Estimation of Activity and Osmotic Coefficients in UO2(NO)3‑HNO3-NaNO3 Mixtures. *Solvent Extr. Ion Exch.* **1988,** *6,* 675-697.
20. Moyer, B. A.; Caley, C. E.; Baes, Jr., C. F. Hydration and Aggregation of Monofunctional Sulfoxide and Other Neutral Oxygen-Donor Extractants: The Di(2-Ethylhexyl) Sulfoxide, Dodecane, Water System. *Solvent Extr. Ion Exch.* **1988,** *6* (5), 785-817.
21. Olins, A. L.; Moyer, B. A.; Kim, S. H.; Allison, D. P. Synthesis of a More Stable Osmium Ammine, Electron Dense DNA Stain. *J. Histochem. Cytochem.* **1989,** *37* (3), 395-398.
22. Kim, S. H.; Moyer, B. A.; Azan, S.; Brown, G. M.; Olins, A. L.; Allison, D. P. Preparation and Properties of the Nitrido-Bridged Osmium(IV) Binuclear Complexes [OsIV2N(NH3)10‑nCln]Cl5‑n (n=2,3). *Inorg. Chem.* **1989,** *28*, 4648-4650.
23. Lumetta, G. L.; Moyer, B. A.; Johnson, P. A. Extraction of Manganese(II) by Mixtures of Didodecylnaphthalenesulfonic Acid and *t*-Butyl-Cyclohexano-15-Crown-5: Spectral Evidence for the Formation of a Manganese(II) - Crown Ether Complex. *Solvent Extr. Ion Exch.* **1990,** *8*, 457‑475.
24. Bryan, S. A.; Willis, R. R.; Moyer, B. A. The Hydration of 18-Crown-6 in Carbon Tetrachloride. Infrared Spectral Evidence for an Equilibrium Between Monodentate and Bidentate Forms of Bound Water in the 1:1 Crown-Water Adduct. *J. Phys. Chem.* **1990,** *94*, 5230-5233.
25. Baes, Jr., C. F.; Moyer, B. A.; Case, G. N.; Case, F. I. SXLSQA, A Computer Program for Including both Complex Formation and Activity Effects in the Interpretation of Solvent Extraction Data. *Sep. Sci. Technol.* **1990,** *25* (13-15), 1675-1688.
26. Moyer, B. A.; Baltich, F. J.; Andrews, K. C. Interfacial Precipitates Containing Dodecamolybdophosphate and Dodecamolybdoarsenate Anions in Tertiary Amine Solvent Extraction. *Hydrometallurgy* **1991,** *27*, 113-122.
27. Lumetta, G. L.; Moyer, B. A.; Johnson, P. A.; Wilson, N. M. Extraction of Zinc(II) Ion by Didodecylnaphthalene Sulfonic Acid (HDDNS) in Carbon Tetrachloride: The Role of Aggregation. *Solvent Extr. Ion Exch.* **1991,** *9* (1), 155-176.
28. Moyer, B. A.; Case, F. I. On the Origin of Haze in Extraction Solvents: Dilution-Induced Supersaturation of Water. *Solvent Extr. Ion Exch.* **1991,** *9* (2), 277-288.
29. Lumetta, G. L.; Moyer, B. A. FTIR Spectroscopic Investigations of the Complexation of *t*-Butylcyclohexano-15-crown-5 with Divalent Transition Metal Ions. *J. Coord. Chem.* **1991,** *22*, 331-336.
30. McDowell, W. J.; Baes, Jr., C. F.; Case, G. N.; Case, F. I. Liquid-Liquid Equilibrium Analysis in Perspective. Part 1: Slope Analysis of the Extraction of Uranyl Nitrate from Nitric Acid by Di-2-ethylhexylsulfoxide. *Solvent Extr. Ion Exch.* **1991,** *9*, 833-864.
31. Sachleben Moyer, B. A.;, R. A.; Moyer, B. A.; Case, F. I.; Garmon, S. A. Alkylated Lariat Ethers as Solvent Extraction Reagents: Surveying the Extraction of Alkali Metals by Bis‑*t*‑Octylbenzo‑14‑Crown‑4‑Acetic Acid by Use of Potentiometric Two-Phase Titration. *Sep. Sci. Technol.* **1993,** *28*, 1-23.
32. Moyer, B. A.; Baes, Jr., C. F.; Case, G. N.; Lumetta, G. L.; Wilson, N. M. Equilibrium Analysis of Aggregation Behavior in the Solvent Extraction of Cu(II) from Sulfuric Acid by Didodecylnaphthalene Sulfonic Acid. *Sep. Sci. Technol.* **1993,** *28*, 81-113.
33. B. A. Moyer, L. H. Delmau, G. J. Lumetta, and C. F. Baes, Jr., "Extraction of Mn(II) from Nitric Acid by Crown Ether-Synergized Cation Exchange: Extended Equilibrium and Infrared Analysis," *Solvent Extr. Ion Exch.* 11, 889-922 (1993).
34. R. A. Sachleben, M. C. Davis, J. J. Bruce, E. S. Ripple, J. L. Driver, B. A. Moyer, "An Efficient Synthesis of Lithium-Selective Extractants: Tertiary-Alkyl-14-Crown-4 Ethers", *Tetrahedron Lett*. 34, 5373-5376 (1993).
35. B. A. Moyer, G. N. Case, S. D. Alexandratos, A. A. Kriger, "Extraction of Cu(II) from Sulfuric Acid by Macrocycle-Synergized Cation Exchange: Comparing a Novel Impregnated Resin with its Solvent-Extraction Analog," *Anal. Chem.* 65, 3389-3395 (1993).
36. Z. Chen, R. A. Sachleben, and B. A. Moyer, "Dimerization Behavior of Substituted Dibenzo-14-Crown-4 Alcohols Studied by NMR Spectroscopy" *Supramol. Chem*. 3, 219-222 (1994).
37. C. F. Baes, Jr., E. J. Reardon, and B. A. Moyer, "Ion Interaction Model Applied to the CuSO4-H2SO4-H2O System at 25 °C," *J. Phys. Chem*. 97, 12343-12348 (1993).
38. R. A. Sachleben, B. A. Moyer, and J. L. Driver, "Extraction of Alkali Metal Cations by Lipophilic Dibenzo-14-Crown-4 Carboxylic Acids," *Sep. Sci. Technol.* 30, 1157-1168 (1995).
39. B. A. Moyer, L. H. Delmau, G. N. Case, S. Bajo, and C. F. Baes, Jr., "Comprehensive Equilibrium Analysis of the Complexation of Cu(II) by Tetrathia-14-Crown-4 in a Synergistic Extraction System Employing Didodecylnaphthalene Sulfonic Acid," *Sep. Sci. Technol.* 30, 1047-1069 (1995).
40. A. Kriger, S. D. Alexandratos, C. G. Ciaccio, and B. A. Moyer, "Synergistic Complexation of Metal Ions with Bifunctional Interpenetrating Polymer Networks," *Reactive Polymers* 24, 35-39 (1994).
41. Y. Deng, J. H. Burns, and B. A. Moyer, "Complexation of Mn(II) by Cyclohexano-15-Crown-5 in Propylene Carbonate: Calorimetric and X-ray Crystallographic Investigation," Inorg. Chem. 34, 209-213 (1995).
42. Y. Sun and B. A. Moyer, "Phase Volume Changes Accompanying Water Extraction from Aqueous Electrolyte Solutions by 1-Octanol," Solvent Extr. Ion Exch. 13, 243-252 (1995).
43. Y. Sun, G. M. Brown, and B. A. Moyer, "TiO2-Mediated Photooxidation of Trichloroethylene and Toluene Dissolved in Fluorocarbon Solvents," *Chemosphere* 31, 3575-3584 (1995).
44. Y. Deng, R. A. Sachleben, and B. A. Moyer, "Equilibrium Aspects of the Extraction of Cesium Nitrate by Dicyclohexano-21-crown-7, Dibenzo-21-crown-7, and Bis-[*tert*-alkylbenzo]-21-crown-7," *J. Chem. Soc., Faraday Trans.* 23, 4215-4222, 1995.
45. A. Gakh, B. G. Sumpter, D. W. Noid, R. A. Sachleben, and B. A. Moyer, "Prediction of Complexation Properties of Crown Ethers Using Computational Neural Networks," *J. Inclusion Phenom. Mol. Recognit. Chem.* 27, 201-213 (1997).
46. Gakh, R. A. Sachleben, J. C. Bryan, and B. A. Moyer, "A Facile Synthesis and X-Ray Structure Determination of the First Triptycenocrown Ether," *Tetrahedron Letters* 36(45), 8163-8166 (1995).
47. Y. Sun, Z. Chen, K. L. Cavenaugh, R. A. Sachleben, and B. A. Moyer, "Equilibria and Speciation in the Solvent Extraction of Lithium Chloride by Nonamethyl-14-Crown-4 Ether in 1-Octanol," *J. Phys. Chem.*, 100, 9500-9505 (1996).
48. R. A. Sachleben, Y. Deng, and B. A. Moyer, "Ring-Size and Substituent Effects in the Solvent Extraction of Alkali Metal Nitrates by Crown ethers in 1,2-Dichloroethane in 1-Octanol," *Solvent Extr. Ion Exch.*, 14(6), 995-1015 (1996).
49. R. A. Sachleben, Y. Deng, and B. A. Moyer, "Ion-Pair Extraction of Alkali Metal Nitrate Salts by Lipophilic Benzo-Substituted 24-Crown-8 Ethers," *Sep. Sci. Technol.* 32, 275-284 (1997).
50. T. J. Haverlock, P. V. Bonnesen, R. A. Sachleben, and B. A. Moyer, "Applicability of a Calixarene-Crown Compound for the Removal of Cesium from Alkaline Tank Waste," *Radiochim. Acta*. 76, 103-108 (1997).
51. C. F. Baes, Jr., and B. A. Moyer, "Solubility Parameters and the Distribution of Ions to Nonaqueous Solvents," *J. Phys. Chem. B* 101, 6566-6574 (1997).
52. B. A. Moyer, Y. Deng, Y. Sun, R. A. Sachleben, A. K. Batra, and R. B. Robinson, "Extraction of Cesium Nitrate from Concentrated Sodium Nitrate Solutions with 21-Crown-7 Ethers. Selectivity and Equilibrium Modeling," *Solvent Extr. Ion Exch.* 15(5), 791-810 (1997).
53. Leonard, R. A.; Conner, C.; Liberatore, M. W.; Bonnesen, P. V.; Presley, D. J.; Moyer, B. A.; Lumetta, G. J. Developing and Testing an Alkaline-Side Solvent Extraction Process for Technetium Separation from Tank Waste. *Sep. Sci. Technol.* **1999**, *34*(6&7), 1043–1068.
54. Chambliss, C. K.; Odom, M. A.; Martin, C. R.; Moyer, B. A.; Strauss, S. H. Rapid and Selective Redox-Recyclable Anion-Exchange Materials Containing Polyalkylated Ferricenium Anion-Exchange Sites. *Inorg. Chem. Commun.* **1999**, *1*(11), 435–438.
55. Chambliss, C. K.; Moyer, B. A.; Martin, C. R.; Strauss, S. H. Comparison of the Lipophilic Redox-Recyclable Extractant [Fe(**5-C5H3(*s*-C7H15)2)2][NO3] with [N(*n*-C7H15)4][NO3] for Liquid-Liquid Anion Exchange of Aqueous 99TcO4–. *Solvent Extr. Ion Exch.* **1999**, *17*(3), 553–584.
56. T. J. Haverlock, P. V. Bonnesen, R. A. Sachleben, and B. A. Moyer, "Analysis of Equilibria in the Extraction of Cesium Nitrate by Calix[4]arene-bis(*t*-octylbenzo-crown-6) in 1,2-Dichloroethane," *J. Inclusion Phenom. Macrocylcic Chem.* 36, 21-37 (2000).
57. J. C. Bryan, L. H. Delmau, B. P. Hay, J. B. Nicholas, L. M. Rogers, R. D. Rogers, and B. A. Moyer, "Cesium Recognition by Supramolecular Assemblies of 2-Benzylphenol and 2-Benzylphenolate," *Structural Chem.* 10(3), 187-203 (1999) (Invited).
58. R. A. Sachleben, A. Urvoas, J. C. Bryan, T. J. Haverlock, B. P. Hay, and B. A. Moyer, "Dideoxygenated Calix[4]arene Crown-6 Ethers Prefer the 1,3-Alternate Conformation and Exhibit Enhanced Selectivity for Cesium over Potassium and Rubidium," *J. Chem. Soc., Chem. Commun.* 1751-1752 (1999).
59. Sachleben, R. A.; Bonnesen, P. V.; Descazeaud, T.; Haverlock, T. J.; Urvoas, A.; Moyer, B. A. Surveying the Extraction of Cesium Nitrate by 1,3-Alternate Calix[4]arene Crown-6 Ethers in 1,2-Dichloroethane. *Solvent Extr. Ion Exch.* **1999**, *17*, 1445–1459.
60. J. C. Bryan, L. H. Delmau, R. A. Sachleben, and B. A. Moyer, "1,2-Bis(2-pyridinooxyethoxy)benzene," *Acta Crystallogr.* C 55, 618-620 (1999).
61. K. Kavallieratos, R. A. Sachleben, G. J. Van Berkel, and B. A. Moyer, "Novel Dual-Host Approach in Ion Pair Extraction – A Simple Tripodal Nitrate Host Facilitates CsNO3 Transfer to 1,2-Dichloroethane by a Large Crown Ether," *Chem. Commun.* 187-188 (2000).
62. Bonnesen, P. V.; Brown, G. M.; Alexandratos, S. D.; Bavoux, L. B.; Presley, D. J.; Patel, V.; Moyer, B. A. Development of Bifunctional Anion Exchange Resins with Improved Selectivity and Sorptive Kinetics for Pertechnetate. Batch-Equilibrium Experiments. *Environ. Sci. Technol.* **2000**, *34*, 3761–3766.
63. Gu, B.; Brown, G. M.; Bonnesen, P. V.; Liang, L.; Moyer, B. A.; Ober, R.; Alexandratos, S. D. Development of Bifunctional Anion-Exchange Resins with Improved Selectivity for Pertechnetate Sorption from Contaminated Groundwater. *Environ. Sci. Technol.* **2000**, *34*, 1075–1080.
64. Cai, M.; Marlow, A. L.; Fettinger, J. C.; Fabris, D.; Haverlock, T. J.; Moyer, B. A.; Davis, J. T. Binding Cesium Ion with Nucleoside Pentamers. Templated Self-Assembly of an Isoguanosine Decamer. *Angew. Chem.* **2000**, *39*, 1283–1285.
65. Levitskaia, T. G.; Bryan, J. C.; Sachleben, R. A.; Lamb, J. D.; Moyer, B. A. A Surprising Host-Guest Relationship between 1,2-Dichloroethane and the Cesium Complex of Tetrabenzo-24-Crown-8. *J. Am. Chem. Soc.* **2000**, *122*, 554–562.
66. Levitskaia, T. G.; Macdonald, D. M.; Lamb, J. D.; Moyer, B. A. Prediction of the Carrier-Mediated Cation Flux through Polymer Inclusion Membranes via Fundamental Thermodynamic Quantities: Complexation Study of Bis(dodecyloxy)calis[4]arene-crown-6 with Alkali Metal Cations. *Phys. Chem. Chem. Phys.* **2000**, *2*, 1481–1491.
67. Leonard, R. A.; Conner, C.; Liberatore, M. W.; Sedlet, J.; Aase, S. B.; Vandegrift, G. F.; Delmau, L. H.; Bonnesen, P. V.; Moyer, B. A. Development of a Solvent Extraction Process for Cesium Removal from SRS Tank Waste. *Sep. Sci. Technol*. **2001**, *36*, 743–766.
68. P. V. Bonnesen, L. H. Delmau, B. A. Moyer, and R. A. Leonard, "A Robust Alkaline-Side CSEX Solvent Suitable for Removing Cesium from Savannah River High Level Waste," *Solvent Extr. Ion Exch.,* 18(6), 1079-1108 (2000).
69. Kavallieratos, K.; Danby, A. M.; Van Berkel, G. J.; Kelly, M. A.; Sachleben, R. A.; Moyer, B. A.; Bowman-James, K. Enhancement of CsNO3 Extraction in 1,2-Dichloroethane by *Tris*(2-aminoethyl)amine Triamide Derivatives via a Dual-Host Strategy. *Anal. Chem*. **2000**, *72* (21), 5258–5264.
70. Nash, K. L.; Barrans, R. E.; Chiarizia, R.; Dietz, M. L.; Jensen, M. P.; Rickert, P. G.; Moyer, B. A.; Bonnesen, P. V.; Bryan, J. C.; Sachleben, R. A. Fundamental Investigations of Separations Science for Radioactive Materials. *Solvent Extr. Ion Exch.* **2000**, *18*(4), 605–631 (Invited Review).
71. Kavallieratos K.; Moyer, B. A. Attenuation of Hofmeister Bias in Ion-Pair Extraction by a Disulfonamide Anion Host Used in Strikingly Effective Synergstic Combination with a Calix-Crown Cs+ Ion Host. *Chem. Commun.* **2001**,1620–1621.
72. T. G. Levitskaia, R. A. Sachleben, J. C. Bryan, B. A. Moyer, “Synthesis, Structure, and Extraction Behavior of 4,5’,4”,4’”-Tetra-*t*-butylbenzo-24-crown-8,” *J. Chem. Soc., Perkin Trans. 2*, 808-814 (2001).
73. T. G. Levitskaia, K. L. Fox, J. D. Lamb, and B. A. Moyer, “Selective Carrier-Mediated Cesium Transport Through Polymer Inclusion Membranes by Calix[4]arene-Crown-6 Carriers from Complex Aqueous Mixtures,” *Radiochim. Acta*, **90**, 43-52 (2002).
74. B. A. Moyer, C. F. Baes, Jr., F. I. Case, and J. L. Driver, “Liquid-Liquid Equilibrium Analysis in Perspective. II. Complete Model of Water, Nitric Acid, and Uranyl Nitrate Extraction by Di-2-ethylhexyl Sulfoxide in Dodecane,” *Solvent Extr. Ion Exch.*, 19(5), 757-790 (2001).
75. Duchemin, C. R.; Engle, N. L.; Bonnesen, P. V.; Haverlock, T. J.; Delmau, L. H.; Moyer, B. A. Solvatochromic Solvent Polarity Measurements of Alcohol Solvent Modifiers and Correlation with Cesium Extraction Strength, *Solvent Extr. Ion Exch.* **2001**, *19*(6), 1037-1058.
76. Chambliss, C. K.; Haverlock, T. J.; Bonnesen, P. V.; Engle, N. L.; Moyer, B. A. Selective Separation of Hydroxide from Alkaline Media by Liquid-Liquid Extraction with Weak Hydroxy Acids. *Environ. Sci. Technol.* **2002**, *36,* 1861–1867.
77. Levitskaia, T. G.; Moyer, B. A.; Bonnesen, P. V.; Marchand, A. P.; Krishnudu, K.; Chen, Z.; Huang, Z.; Kruger, H. G.; McKim, A. S., Novel Approach to Sodium Hydroxide Separation: Synergistic Pseudo Hydroxide Extraction by a Fluorinated Alcohol and Cage-Functionalized Crown Ethers. *J. Am. Chem. Soc.* **2001,** *123* (48), 12099-12100.
78. Gu, B.; Brown, G. M.; Maya, L.; Moyer, B. A.; Lance, M. J. Regeneration of Perchlorate (ClO4–)-Loaded Anion Exchange Resins by Novel Tetrachloroferrate (FeCl4–) Displacement Technique. *Environ. Sci. Technol.* **2001**, *35*, 3363–3368. DOI: 10.1021/es010604i.
79. J. C. Bryan, T. Chen, T. G. Levitskaia, T. J. Haverlock, C. E. Barnes, and B. A. Moyer, “Solvation of Calix[4]arene-bis-crown-6 Molecules,” *J. Inclusion Phenom.* **42**, 241-245 (2002).
80. R. A. Sachleben, J. C. Bryan, G. Das, T. Descazeaud, Y. Sun, and B. A. Moyer, “Synthesis, Structure, and Extraction Properties of *paco*-Calix[4]arene Crown-6 Ethers,” *J. Inclusion Phenom.* **43**, 55-64 (2002).
81. Hay, B. P.; Dixon, D. A.; Bryan, J. C.; Moyer, B. A. Crystallographic Evidence for Oxygen Acceptor Directionality in Oxyanion Hydrogen Bonds. *J. Am. Chem. Soc.* **2002**, *124*(2), 182–183.
82. Haverlock, T. J.; Mirzadeh, S.; Moyer, B. A. Selectivity of calix[4]arene-bis(benzocrown-6) in the complexation and transport of francium ion. *J. Am. Chem. Soc.* **2003,** *125*, (5), 1126–1127.
83. Levitskaia, T. G.; Bonnesen, P. V.; Chambliss, C. K.; Moyer, B. A. "Synergistic Pseudo-Hydroxide Extraction: Synergism and Anion Selectivity in Sodium Extraction Using a Crown Ether and a Series of Weak Lipophlilic Acids," *Anal. Chem.* **2003**, *75*(3), 405–412.
84. Bonnesen, P. V.; Delmau, L. H.; Moyer, B. A.; Lumetta, G. J. Development of effective solvent modifiers for the solvent extraction of cesium from alkaline high-level tank waste. *Solvent Extr. Ion Exch.* **2003,** *21* (2), 141-170.
85. Maya, L.; Moyer, B. A.; Lance, M. J. Vibrational Spectroscopy of Weak Hydroxy Acids Used as Extractants of Sodium Hydroxide into 1-Octanol, *Appl. Spectrosc*. **2003**, *57*(2), 238–241.
86. Gorbunova, M. G.; Bonnesen, P. V.; Engle, N. L.; Bazelaire, E.; Delmau, L. H.; Moyer, B. A. New amino-functionalized 1,3-alternate calix[4]arene bis- and mono-(benzo-crown-6 ethers) for pH-switched cesium nitrate extraction. *Tetrahedron Lett.* **2003,** *44* (29), 5397-5401.
87. Levitskaia, T. G.; Marquez, M.; Sessler, J. L.; Shriver, J. A.; Vercouter, T.; Moyer, B. A. Fluorinated calixpyrroles: anion-binding extractants that reduce the Hofmeister bias. *Chem. Commun.* **2003**, (17), 2248-2249.
88. Haverlock, T. J.; Bonnesen, P. V.; Moyer, B. A. “Separation of NaOH by Solvent Extraction Using Weak Hydroxy Acids,” *Solvent Extr. Ion Exch.* **2003**, *21* (4), 483–504.
89. Sachleben, R. A.; Bryan, J. C.; Engle, N. L.: Haverlock, T. J.; Hay, B. P.: Urvoas, A.; Moyer, B. A. Rational Design of Cesium-Selective Ionophores: Dihydrocalix[4]arene Crown-6 Ethers, *European J. Org. Chem.* **2003**, 4862–4869.
90. Delmau, L. H.; Bonnesen, P. V.; Moyer, B. A. A Solution to Stripping Problems Caused by Organophilic Anion Impurities in Crown-Ether Based Solvent Extraction Systems: A Case Study of Cesium Removal from Radioactive Wastes. *Hydrometallurgy* **2004**, *72* (1,2), 9–19.
91. Bazelaire, E.; Gorbunova, M. G.; Bonnesen, P. V.; Moyer, B. A., and Delmau, L. H. pH-switchable Cesium Nitrate Extraction with Calix[4]arene Mono- and Bis(benzocrown-6) Ethers Bearing Amino Functionalities. *Solvent Extr. Ion Exch.* **2004**, *22*(4), 637–661.
92. Engle, N. L.; Bonnesen, P. V.; Tomkins, B. A.; Haverlock, T. J.; Moyer, B. A. Synthesis and Properties of Calix[4]arene-bis[4-(2-ethylhexyl)benzo-crown-6], a Cesium Extractant with Improved Solubility. *Solvent Extr. Ion Exch.* **2004**, *22*(4), 611–636.
93. Hay, B. P.; Gutowski, M.; Dixon, D. A.; Garza, J.; Vargas, R.; Moyer, B. A. Structural Criteria for the Rational Design of Selective Ligands. 4. Convergent Hydrogen-Bonding Sites for the Nitrate Anion. *J. Am. Chem. Soc.* **2004**, *126* (25), 7925–7934.
94. Hay, B. P.; Firman, T. K.; Moyer, B. A. Structural Design Criteria for Anion Hosts: Strategies for Achieving Anion Shape Recognition through the Complementary Placement of Urea Donor Groups. *J. Am. Chem. Soc.* **2005**, *127*, 1810–1819.
95. Delmau, L. H.; Lefranc, T. J.; Bonnesen, P. V.; Bryan, J. C.; Presley, D. J.; Moyer, B. A. Fundamental Studies Regarding Synergism Between Calix[4]arene-bis(*tert*-octylbenzo-crown-6) and Alcohol Modifiers in the Solvent Extraction of Cesium Nitrate. *Solvent Extr. Ion Exch.*, **2005**, *23*, (23–57).
96. Kang, H-A; Engle, N. L.; Bonnesen, P. V.; Delmau, L. H.; Haverlock, T. J.; Moyer, B.A. An Equilibrium Model of Pseudo-Hydroxide Extraction in the Separation of Sodium Hydroxide from Aqueous Solutions Using Lipophilic Fluorinated Alcohols and Phenols. *Sep. Sci. Technol.*, **2005**, *40* (1–2), 725–738.
97. Moyer, B. A.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Hay, B. P. Strategies for Using Host-Guest Chemistry in the Extractive Separations of Ionic Guests. *Kem. Ind.* **2005**, *54* (2), 65–87 (Invited review).
98. Custelcean, R.; Delmau, L. H.; Moyer, B. A.; Sessler, J. L.; Cho, W-S., Gross, D.; Bates, G. W.; Brooks, S. J.; Light, M. E.; Gale, P. A. Calix[4]pyrrole: An Old Yet New Ion-pair Receptor. *Angew. Chem.* **2005**, *44* (17), 2537–2542. (Featured on Cover).
99. Alexandratos, S. D.; Stine, C. L.; Sachleben, R. A.; Moyer, B. A. Immobilization of Lithium-Selective 14-Crown-4 on Crosslinked Polymer Supports. *Polymer* **2005**, *46*, 6347–6352.
100. Custelcean, R.; Moyer, B. A.; Hay, B. P. A Coordinatively Saturated Sulfate Encapsulated in a Metal-Organic Framework Functionalized with Urea Hydrogen-Bonding Groups. *Chem. Commun.* **2005**, 5971–5973. (Featured on Inside Cover).
101. Luo, H.; Dai, S.; Bonnesen, P.V.; Haverlock, T. J.; Moyer, B. A.; and Buchanan III, A. C. A Striking Effect of Ionic-Liquid Anions in the Extraction of Sr2+and Cs+ by Dicyclohexano-18-Crown-6. *Solvent Extr. Ion Exch.* **2006**, *24* (1), 19–31.
102. Custelcean, R.; Moyer, B. A.; Bryantsev, V. S.; Hay, B. P. Anion Coordination in Metal-Organic Frameworks Functionalized with Urea Hydrogen-Bonding Groups. *Cryst. Growth Design* **2006**, *6* (2), 555–563.
103. Custelcean, R.; Haverlock, T. J.; Moyer, B. A. Anion Separation by Selective Crystallization of Metal-Organic Frameworks. *Inorg. Chem.* **2006**, *45*, 6446–6452.
104. Delmau, L. H.; Bonnesen, P. V.; Engle, N. L.; Haverlock, T. J.; Sloop, F. V., Jr.; Moyer, B. A. Combined Extraction of Cesium and Strontium from Alkaline Nitrate Solutions. *Solvent Extr. Ion Exch.* **2006**, *24* (2), 197–225.
105. Kang, H-A.; Moyer, B. A. Pseudo-Hydroxide Extraction in the Separation of Sodium Hydroxide from Aqueous Solutions Using Alkyl Phenols. *Solvent Extr. Ion Exch*. **2006,** *24*(3), 387–405.
106. Levitskaia, T. G.; Maya, L.; Van Berkel, G. J.; Moyer, B. A. Anion Partitioning and Ion-Pairing Behavior of Anions in the Extraction of Cesium Salts by 4,5"-bis(tert-octylbenzo)dibenzo-24-crown-8 in 1,2-Dichloroethane. *Inorg. Chem*. **2007**, *46* (1), 261–272.
107. Custelcean, R.; Sellin, V.; Moyer, B. A. Sulfate Separation by Selective Crystallization of a Urea-Functionalized Metal-Organic Framework. *Chem. Commun.*, **2007**, 1541–1543.
108. Custelcean, R.; Moyer, B. A. Anion Separation with Metal-Organic Frameworks. *Eur. J. Inorg. Chem.* **2007**, 1321–1340 (Invited review, featured on cover).
109. Eller, L. R.; Stępień, M.; Fowler, C. J.; Lee, J. T.; Sessler, J. L.; Moyer, B. A. Octamethyl-octaundecylcyclo[8]pyrrole: A Promising Sulfate Anion Extractant. *J. Am. Chem. Soc.* **2007**, *129*, 11020–11021. Correction: *J. Am. Chem. Soc.* **2007**, *129*, 14523.
110. Harmon, B. W.; Ensor, D. D.; Delmau, L. H.; Moyer B. A. Extraction of Cesium by a Calix[4]arene-crown-6 Ether Bearing a Pendant Amine Group. *Solvent Extr. Ion Exch.* **2007**, *25*(3), 373–388.
111. Custelcean, R.; Remy, P.; Bonnesen, P. V.; Jiang, D.-e.; Moyer, B. A. Sulfate Recognition by Persistent Crystalline Capsules with Rigidified Hydrogen Bonding Cavities. *Angew. Chem.* **2008**, *47*, 1866–1870.
112. Wintergerst, M. P.; Levitskaia, T. G.; Moyer, B. A.; Sessler, J. L.; Delmau, L. H. Calix[4]pyrrole: A New Ion-Pair Receptor As Demonstrated by Liquid-Liquid Extraction. *J. Am. Chem. Soc.* **2008**, *130*(12), 4129–4139.
113. Fowler, C. J.; Haverlock, T. J.; Moyer, B. A.; Shriver, J. A.; Gross, D. E.; Marquez, M.; Sessler, J. L.; Hossain, M. A.; Bowman-James, K. Enhanced Anion Exchange for Selective Sulfate Extraction: Overcoming the Hofmeister Bias. *J. Am. Chem. Soc.* **2008**, *130*(44) 14386–14387.
114. Delmau, L. H.; Haverlock, T. J.; Bazelaire, E.; Bonnesen, P. V.; Ditto, M. E.; Moyer, B. A. Alternatives to Nitric Acid Stripping in the Caustic-Side Solvent Extraction (CSSX) Process for Cesium Removal from High-Level Waste. *Solvent Extr. Ion Exch.* **2009**, *27* (2), 172–198.
115. Delmau, L. H.; Birdwell, J. F., Jr.; McFarlane, J.; Moyer, B. A. Robustness of the CSSX Process to Feed Variation: Efficient Cesium Removal from the High Potassium Wastes at Hanford. *Solvent Extr. Ion Exch.* **2010**, *28* (1), 19–48.
116. Moyer, B. A.; Sloop, F. V., Jr.; Fowler, C. J.; Haverlock, T. J.; Kang, H.-A.; Delmau, L. H.; Bau, D. M.; Hossain, A.; Bowman-James, K.; Shriver, J. A.; N. Bill; Gross, D. E.; Marquez, M.; Sessler, J. L. Enhanced Liquid-Liquid Anion Exchange Using Macrocyclic Anion Receptors: Effect of Receptor Structure on Sulfate-Nitrate Exchange Selectivity. *Supramol. Chem.* **2010**, *22*(11), 653–671.
117. Custelcean, R.; Bock, A.; Moyer, B. A. Selectivity Principles in Anion Separation by Crystallization of Hydrogen-Bonding Capsules, *J. Am. Chem. Soc.* **2010**, *132*, 7177–7185.
118. Kříž, J.; Dybal, J.; Makrlík, E.; Vaňura, P.; Moyer, B. A. Interaction of Cesium Ions with Calix[4]arene-bis(*t-*octylbenzo-18-crown-6): NMR and Theoretical Study. *J. Phys. Chem. B* **2011**, *115*, 7578–7587.
119. Borman, C. J.; Custelcean, R.; Hay, B. P.; Bill, N. L.; Sessler, J. L.; Moyer, B. A. Supramolecular Organization of Calix[4]pyrrole with a Methyl-trialkylammonium Anion Exchanger Leads to Remarkable Reversal of Selectivity for Sulfate Extraction vs Nitrate. Chem. Commun. **2011**, 47(27), 7611–7613; DOI: 10.1039/C1CC12060C.
120. Rajbanshi, A.; Moyer, B. A.; Custelcean, R. Sulfate Separation from Aqueous Alkaline Solutions by Selective Crystallization of Alkali Metal Coordination Capsules. *Cryst. Growth Des.* **2011**, 11(7) 2702–2706. **DOI:** 10.1021/cg200515w.
121. Kim, S. K.; Vargas-Zúñiga, G. I.; Hay, B. P.; Young, N. J.; Delmau, L. H.; Masselin, C.; Lee, C.-H.; Kim, J. S.; Lynch, V. M.; Moyer, B. A.; Sessler, J. L. Controlling Cesium Cation Recognition via Cation Metathesis within an Ion Pair Receptor. *J. Am. Chem. Soc.* **2012**, *134*(3), 1782–1792. DOI: 10.1021/ja209706x.
122. Rajbanshi, A.; Moyer, B. A.; Custelcean, R. Sulfate Separation from Hanford Waste Simulants by Selective Crystallization of Urea-Functionalized Capsules, *Sep. Sci. Technol.* **2012** *47*, 2145–2150.DOI:10.1080/01496395.2012.697512.
123. Duncan, N. C.; Roach, B. D.; Williams, N. J.; Bonnesen, P. V.; Rajbanshi, A.; Moyer, B. A. *N*,*N*’-Dicyclohexyl-*N*”-Isotridecylguanidine as Suppressor for the Next Generation Caustic-Side Solvent Extraction (NG-CSSX) Process, *Sep. Sci. Technol.* **2012**, *47*, 2074–2087;DOI:10.1080/01496395.2012.697517.
124. Borman, C. J.; Bonnesen, P. V.; Moyer, B. A. Selectivity Control in Synergistic Liquid-Liquid Anion Exchange of Univalent Anions via Structure-Specific Cooperativity between Quaternary Ammonium Cations and Anion Receptors. *Anal. Chem.*, **2012**, *84* (19), 8214–8221; <http://dx.doi.org/10.1021/ac301315c> .
125. Moyer, B. A.; Custelcean, R.; Hay, B. P.; Sessler, J. L.; Bowman-James, K.; Day, V. W.; Kang, S.-O. A Case for Molecular Recognition in Nuclear Separations: Sulfate Removal from Nuclear Wastes. *Inorg. Chem.* **2013**, 52, 3473–3490, DOI:10.1021/ic3016832. (Invited forum review).
126. Kim, S. K.; Lynch, V. M.; Young, N. J.; Hay, B. P.; Lee, C.-H.; Kim, J. S.; Moyer, B. A.; Sessler, J. L. KF and CsF Recognition and Extraction by a Calix[4]crown-5 Strapped Calix[4]pyrrole Multitopic Receptor. *J. Am. Chem. Soc.* **2012**, *134*, 20837–20843.
127. Kim, S. K.; Hay, B. P.; Kim, J. S.; Moyer, B. A.; Sessler, J. A. Capture and Metathesis-Based Release of Potassium Salts by a Multitopic Ion Receptor. *Chem. Commun.* **2013**, *49*, 2112–2114, DOI: 10.1039/C3CC39117E.
128. Makrlík, E.; Toman, P.; Vaňura, P.; Moyer, B. A. Interaction of the Cesium Cation with Calix[4]arene-bis(*t-*octylbenzo-18-crown-6): Extraction and DFT Study. *J. Mol. Struct.* **2013**, *1033*, 14–18. DOI: 10.1016/j.molstruc.2012.07.049.
129. Makrlík, E.; Selucky, P.; Vaňura, P.; Moyer, B. A. Solvent extraction of Li+, H3O+ and NH4+ into nitrobenzene by using sodium dicarbollylcobaltate and calix[4]arene-bis(t-octylbenzo-18-crown-6). *J. Radioanal. Nucl. Chem.* **2013**, *295*, 2171–2174.
130. Makrlík, E.; Selucky, P.; Vaňura, P.; Moyer, B. A. Synergistic extraction of some univalent cations into nitrobenzene by using cesium dicarbollylcobaltate and calix[4]arenebis(*t*-octylbenzo-18-crown-6). *J. Radioanal. Nucl. Chem.* **2013**, *295*, 1015–1018.
131. Zhou, H.; Surowiec, M. A.; Bartsch, R. A.; Haverlock, T. J.; Moyer, B. A.; Delmau, L. H. Highly Lipophilic, Mono-ionizable Calix[4]arene-benzocrown-6 Extractants for Removal of Radiocesium from Nuclear Wastes. *Solvent Extr. Ion Exch.* **2013**, *31 (7)*, 697–714, DOI: 10.1080/07366299.2013.806763.
132. Zhou, H.; Connery, K. E.; Bartsch, R. A.; Moyer, B. A.; Haverlock, T. J.; Delmau, L. H. Lipophilic, Mono-ionizable, Calix[4]arene-bis(benzocrown-6) Compounds for Solvent Extraction of Cesium from Nuclear Wastes: Synthesis and Evaluation. *Solvent Extr. Ion Exch.* **2013**, *31 (7)*, 683–696, DOI: 10.1080/07366299.2013.806754.
133. Delmau, L. H.; Moine, J., Mirzadeh, S.; Moyer, B. A. First Experimentally Determined Thermodynamic Values of Francium: Hydration Energy, Energy of Partitioning, and Thermodynamic Radius. *J. Phys, Chem. B.* **2013**, *117 (31)*, 9258–9261, DOI: 10.1021/jp401880f.
134. Freiderich, J. W.; Wanigasekara, E.; Sun, S.-G.; Meisner, R. A.; Meyer III, H. M.; Luo, H.; Delmau, L. H.; Dai, S.; Moyer, B. A. Direct Electrodeposition of UO2 from Uranyl Bis(trifluoromethanesulfonyl)imide Dissolved in 1-Ethyl-3-methylimidazolium Bis(trifluoromethanesulfonyl)imide Room Temperature Ionic Liquid System. *Electrochim. Acta*, **2014,** *115,* 630–638. DOI: 10.1016/j.electacta.2013.10.187.
135. Izatt, R. M.; Izatt, S. R.; Bruening, R. L.; Izatt, N. E.; Moyer, B. A. Challenges to achievement of metal sustainability in our high-tech society. *Chem. Soc. Rev.* **2014,** *43 (8),* 2451–2475. DOI: 10.1039/C3CS60440C.
136. Makrlik, E.; Toman. P.; Vanura, P.; Moyer, B. A. Calix[4]arene-bis(t-octylbenzo-18-crown-6) as an extraordinarily effective macrocyclic receptor for the univalent thallium cation. *Struct. Chem.* **2014**, *25 (3)*. 847–852. DOI 10.1007/s11224-013-0349-3.
137. Kim, S. K.; Lee, J.; Williams, N. J.; Lynch, V. M.; Hay, B. P.; Moyer, B. A.; Sessler, J. L. Bipyrrole-Strapped Calix[4]pyrroles: Strong Anion Receptors That Extract the Sulfate Anion. *J. Am. Chem. Soc.* **2014,** *136*, 15079–15085. DOI: 10.1021/ja5086996.
138. Guo, J.; Lee, J.; Contescu, C. I.; Gallego, N. C.; Pantelides, S. T.; Pennycook, S. J.; Moyer, B. A.; Chisholm, M. F. Crown ethers in graphene. *Nature Commun.* **2014,** *5,* Article no. 5389. DOI: 10.1038/ncomms6389.
139. Roach, B. D.; Williams, N. J.; Duncan, N. C.; Delmau, L. H.; Lee, D. L.; Birdwell Jr., J. F.; Moyer, B. A. Radiolytic Treatment of the Next-Generation Caustic-Side Solvent Extraction (NGS) Solvent and its Effect on the NGS Process. *Solvent Extr. Ion Exch*. **2015**, *33* (2), 134–151. DOI: 10.1080/07366299.2014.952531.
140. Beltrami, D.; Cote, G.; Mokhtari, H.; Courtaud, B.; Moyer, B. A.; Chagnes, A. Recovery of Uranium from Wet Phosphoric Acid by Solvent Extraction Processes. *Chem. Rev.* **2014,** *114 (24),* 12002–12023. DOI: 10.1021/cr5001546.
141. Custelcean, R.; Sloop, F. V., Jr.; Rajbanshi, A.; Wan, S.; Moyer, B. A. Sodium Sulfate Separation from Aqueous Alkaline Solutions via Crystalline Urea-Functionalized Capsules: Thermodynamics and Kinetics of Crystallization. *Cryst. Growth Des.* **2015**, *15* (1), 517–522. DOI: 10.1021/cg501656s.
142. Diallo, M. S.; Baier, G.; Moyer, B. A.; Hamelers, B. Critical Materials Recovery from Solutions and Wastes: Retrospective and Outlook. *Environ. Sci. Technol.* **2015,** *49,* (16), 9387–9389; DOI: 10.1021/acs.est.5b03694.
143. Roach, B. D.; Williams, N. J.; Moyer, B. A. Thermal Degradation of the Solvent Employed in the Next-Generation Caustic-Side Solvent Extraction Process and its Effect on the Extraction, Scrubbing, and Stripping of Cesium. *Solvent Extr. Ion Exch.* **2015,** *33* (6), 576–591; DOI: 10.1080/07366299.2015.1064298.
144. Seipp, C. A.; Williams, N. J.; Bryantsev, V.; Custelcean, R.; Moyer, B. A. A Conformationally Persistent Pseudo-bicyclic Guanidinium for Anion Coordination As Stabilized by Dual Intramolecular Hydrogen Bonds. *RSC Advances* **2015**, *5*, 107266–107269; DOI: 10.1039/C5RA21864K.
145. Williams, N. J.; Bryantsev, V.; Custelcean, R.; Seipp, C. A.; Moyer, B. A. α,α’,α",α’"-meso-Tetrahexyltetramethyl-calix[4]pyrrole: An easy-to-prepare, isomerically pure anion extractant with enhanced solubility in organic solvents. *Supramol. Chem.* **2016**, *28*, 176–187; DOI: 10.1080/10610278.2015.1120873.
146. Freiderich, J. W.; Stankovich, J. J.; Luo, H. M.; Dai, S.; Moyer, B. A. Dissolution of the Rare-Earth Mineral Bastnaesite by Acidic Amide Ionic Liquid for Recovery of Critical Materials. *Eur. J. Inorg. Chem.* **2015**, 4354–4361; DOI: 10.1002/ejic.201500509.
147. McCann, B. W.; DeSilva, N.; Windus, T. L.; Gordon, M.; Moyer, B. A.; Bryantsev, V.; Hay, B. P. Computer-Aided Molecular Design of Bis‑phosphine Oxide Lanthanide Extractants. *Inorg. Chem.* **2016,** *55* (12), 5787–5803; DOI: 10.1021/acs.inorgchem.
148. Hill, T. G.; Ensor, D.; Delmau, L. H.; Moyer, B. A. Thermal Stability Study of a New Guanidine Suppressor for the Next-Generation Caustic-Side Solvent Extraction Process. *Sep. Sci. Technol.* **2016,** *51* (7), 1133–1140; DOI: 10.1080/01496395.2016.1143509.
149. Wanigasekara, E.; Freiderich, J. W.; Sun, X.; Meisner, R. A.; Luo, H.; Delmau, L. H.; Dai, S.; Moyer, B. A. Tandem Dissolution of UO3 in Amide-Based Acidic Ionic Liquid and in-situ Electrodeposition of UO2 with Regeneration of the Ionic Liquid: A Closed Cycle. *Dalton Trans.* **2016,** *45* (25), 10151–10154DOI: 10.1039/c6dt00873a.
150. Burns, J. D.; Moyer, B. A. Group Hexavalent Actinide Separations: A New Approach to Used Nuclear Fuel Recycling. *Inorg. Chem.* **2016,** *55,* 8913–1919 DOI: [10.1021/acs.inorgchem.6b01430](http://dx.doi.org/10.1021/acs.inorgchem.6b01430), August 2016.
151. Ellis, R. J.; Brigham, D. M.; Delmau, L. H.; Ivanov, A. S.; Vo, M. N.; Reinhart, B.; Moyer, B. A.; Bryantsev V. S. “Straining” to Separate the Rare Earths: How the Lanthanide Contraction Impacts Chelation by Diglycolamide Ligands. *Inorg. Chem.* **2017,** *56* (3), 1152–1160, DOI: 10.1021/acs.inorgchem.6b02156, November 2016.
152. Jansone-Popova, S.; Ivanov, A. S.; Bryantsev, V. S.; Sloop, Jr., F. V.; Custelcean, R.; Popovs, I.; Dekarske, M. M.; Moyer, B. A. Bis-Lactam-1,10-Phenanthroline (BLPhen), a New Type of Preorganzied Mixed *N*,*O*-Donor Ligand that Separates Am(III) over Eu(III) with Exceptionally High Efficiency. *Inorg. Chem.* **2017**, *56* (10), 5911–5917, DOI: 10.1021/acs.inorgchem.7b00555.
153. Ellis, R. J.; Reinhart, B.; Williams, N. J.; Moyer, B. A.; Bryantsev, V. S. Capping the Calix: How Toluene Completes Cesium(I) Coordination with Calix[4]pyrrole. *Chem. Commun.* **2017**, 53 (41), 5610–5613, DOI: 10.1039/c7cc02347b. [COVER]
154. Seipp, C. A.; Williams, N. J.; Bryantsev, V. S.; Moyer, B. A. A Simple Guanidinium Motif for the Selective Binding and Extraction of Sulfate. *Sep. Sci. Technol.* **2017,** *Online Only,* 1-32. DOI: 10.1080/01496395.2017.1318922.
155. Burns, J. D.; Moyer, B. A. Uranyl Nitrate Hexahydrate Solubility in Nitric Acid and its Crystallization Selectivity in the Presence of Nitrate Salts. *J. Cleaner Prod.* **2017**, *172*, 867–871. DOI:10.1016/j.jclepro.2017.10.258.
156. Brigham, D. M.; Ivanov, A. S.; Moyer, B. A.; Bryantsev, V. S.; Ellis, R. J. Trefoil-Shaped Outer-Sphere Ion Clusters Mediate Lanthanide(III) Ion Transport with Diglycolamide Ligands. *J. Am. Chem. Soc.* **2017,** *139* (48), 17350–17358. DOI:10.1021/jacs.7b07318. [COVER]
157. Paranthaman, M. P.; Li, L.; Luo, J.; Hoke, T.; Huseyin, U.; Moyer, B. A.; Harrison, S. Recovery of Lithium from Geothermal Brine with Lithium-Aluminum Layered Double Hydroxide Chloride Sorbents. *Environ. Sci. Technol.* **2017**, *51* 13481–13486. DOI: 10.1021/acs.est.7b03464.
158. Li, L.; Deshmane, V.; Paranthaman, M. P.; Bhave, R.; Moyer, B. A.; Harrison, S. Lithium Recovery from Aqueous Resources and Batteries: A Brief Review. *Johnson Matthey Technol. Rev.* **2018,** *62* (2), 161–176. DOI: 10.1595/20565137X696676.
159. He, Q.; Williams, N. J.; Oh, J. H.; Lynch, V. M.; Kim, S. K.; Moyer, B. A.; Sessler, J. L. Selective Solid–liquid Extraction and Liquid–liquid Extraction of Lithium Chloride using Strapped Calix[4]pyrroles. *Angew. Chem. Int. Ed.* **2018,** *57* (37), 11924–11928. DOI: 10.1002/anie.201805127. [COVER]
160. Baldwin, A. G.; Ivanonv, A. S.; Ellis, R. J.; Moyer, B. A.; Bryantsev, V. S.; Shafer, J. C. Outer‑Sphere Water Clusters Tune the Lanthanide Selectivity of Diglycolamides. *ACS Cent. Sci.* **2018,** *4* (6), 739–747. DOI:10.1021/acscentsci.8b00223. [COVER] [DOE Web Highlight]
161. Williams, N. J.; Seipp, C. A.; Garrabrant, K.; Custelcean, R.; Holguin, E.; Keum, J.; Ellis, R. J.; Moyer, B. A. Surprisingly Selective Sulfate Extraction by a Simple Monofunctional Di(imino)guanidinium Micelle-Forming Anion Receptor. *Chem. Commun.* **2018**, *54,* 10048–10051. 10.1039/c8cc05115a.
162. Jansone-Popova, S.; Moinel, A.; Schott, J. A.; Mahurin, S. M.; Popovs, I.; Veith, G. M.; Moyer, B. A. Guanidinium-Based Ionic Covalent Organic Framework (iCOF) for Rapid and Selective Removal of Toxic Cr(VI) Oxoanions from Water. *Environ. Sci. Technol.***2019**, *53* (2), 878–883. DOI: 10.1021/acs.est.8b04215. [COVER]
163. Wu, L. L.; Li, L.; Evans, S. F.; Eskander, T. A.; Moyer, B. A.; Hu, Z. C.; Antonick, P. J.; Harrison, S.; Paranthaman, M. P.; Riman, R.; Navrotsky, A. Lithium Aluminum-Layered Double Hydroxide Chlorides (LDH): Formation Enthalpies and Energetics for Lithium Ion Capture. *J. Am. Ceram. Soc.* **2019**, *102* (5), 2398–2404. DOI: 10.1111/jace.16150.
164. Williams, N. J.; Roy, S.; Reynolds, C. O.; Custelcean, R.; Bryantsev, V. S.; Moyer, B. A. Enhancing Selectivity of Cation Exchange with Anion Receptors. *Chem. Commun.* **2019**, *55*, 3590–3593. DOI: 10.1039/c9cc00287a. [COVER, Editor’s Choice]
165. Karslyan, Y.; Sloop Jr.; F. V.; Delmau, L. H.; Moyer, B. A.; Popovs, I.; Paulenova, A.; Jansone-Popova, S. Sequestration of Trivalent Americium and Lanthanide Nitrates with Bis-lactam-1,10-phenanthroline Ligand in a Hydrocarbon Solvent. *RSC Advances* **2019**, *9* (46), 26537–26541. DOI: 10.1039/c9ra06115k
166. Healy, M. R.; Ivanov, A. S.; Karslyan, Y.; Bryantsev, V. S.; Moyer, B. A.; Jansone-Popova, S. Efficient Separation of Light Lanthanides(III) by Using Bis‐Lactam Phenanthroline Ligands. *Chem. Eur. J.* **2019**, *25* (25), 6326–6331. DOI: 10.1002/chem.201901084 [COVER]
167. Wu, L. L.; Evans, S. F.; Cheng, Y. Q.; Navrotsky, A.; Moyer, B. A.; Harrison, S.; Paranthaman, M. P. Neutron Spectroscopic and Thermochemical Characterization of Lithium−Aluminum Layered Double Hydroxide Chloride: Implications for Lithium Recovery. *J. Phys. Chem. B* **2019**, *123* (34), 20723–20729. DOI: 10.1021/acs.jpcc.9b04340.
168. Momen, M. A.; Healy, M. R.; Tsouris, C.; Jansone-Popova, S.; DePaoli, D.; Moyer, B. A. Extraction Chromatographic Materials for Clean Hydrometallurgical Separation of Rare Earth Elements Using Diglycolamide Extractants. *Ind. Eng. Chem. Res.* **2019**, *58*(43), 20081–20089, DOI: 10.1021/acs.iecr.9b04528.
169. Thevenet, A.; Custelcean, R.; Moyer, B. A.; Jansone-Popova, S. Synergistic Self-Assembly of Oxoanions and d-Block Metal Ions with Heteroditopic Receptors into Triple-Stranded Helicates. *Chem. Eur. J.* **2020**, *26*(63), 14290–14294. DOI: 10.1002/chem.202003100. [COVER]
170. Sutton, J. E.; Roy, S.; Chowdhury, A. U.; Wu, L. L.; Wanhala, A. K.; De Silva, N.; Jansone-Popova, S.; Hay, B. P.; Cheshire, M. C.; Windus, T. L.; Stack, A. G.; Navrotsky, A.; Moyer, B. A.; Doughty, B.; Bryantsev, V. S. Molecular Recognition at Mineral Surfaces: Implications for the Beneficiation of Rare Earth Ores. *ACS Appl. Mater. Interfaces* **2020**, *12*(14), 16327–16341. DOI: 10.1021/acsami.9b22902**.**
171. Wagh, P.; Islam, S. Z.; Deshmane, V. G.; Gangavarapu, P.; Poplawsky, J.; Yang, G.; Sacci, R.; Evans, S. F.; Mahajan, S.; Paranthaman, M. P.; Moyer, B. A.; Harrison, S.; Bhave, R. Fabrication and Characterization of Composite Membranes for the Concentration of Lithium Containing Solutions Using Forward Osmosis. *Adv. Sustain. Syst.* **2020**, 4 (12), Early Access.DOI: 10.1002/adsu.202000165.
172. Stamberga, D.; Healy, M. R.; Bryantsev, V. S.; Albisser, C.; Karslyan, Y.; Reinhart, B.; Paulenova, A.; Foster, M.; Popovs, I.; Lyon, K.; Moyer, B. A.; Jansone-Popova, S. Structure Activity Relationship Approach toward the Improved Separation of Rare-Earth Elements Using Diglycolamides. *Inorg. Chem.* **2020**, *59*(23), 17620–17630. DOI: 10.1021/acs.inorgchem.0c02861.
173. Everly, D.; Anderson, C. G.; Jansone-Popova, S.; Bryantsev, V.; Moyer, B. A. Beneficiation of Bastnaesite Ore with New Flotation Collector Ligands. A*spects Min. Miner. Sci.* **2021**, *7*(2), 789–800. DOI: 10.31031/AMMS.2021.07.000657
174. Flores, R.; Momen, M. A.; Healy, M. R.; Jansone-Popova, S.; Lyon, K. L.; Reinhart, B.; Cheshire, M. C.; Moyer, B. A. The Coordination Chemistry and Stoichiometry of Extracted Diglycolamide Complexes of Lanthanides in Extraction Chromatography Materials. *Solvent Extr. Ion Exch.* **2022**, *40*(1&2), 6–27. DOI: [10.1080/07366299.2021.1956121](https://doi.org/10.1080/07366299.2021.1956121)
175. Einkauf, J. D.; Bryantsev, V. S.; Moyer, B. A.; Custelcean, R. A Photoresponsive Receptor with a 105 Magnitude of Reversible Anion-Binding Switching. *Chem.* *Eur. J.* **2022**, *28* (26), e202200719. doi.org/10.1002/chem.202200719 [Front cover]
176. Bessen, N. P.; Ivanov, A. S.; Stamberga, D.; Bryantsev, V. S.; Moyer, B. A. A Lipophilic Guanidine with Enhanced Stability for Use in Cesium Separation from Legacy High-Level Nuclear Waste. *Ind. Chem. Eng. Res.* **2023**, *62* (8), 3684–3694. DOI: 10.1021/acs.iecr.2c03928
177. Whittaker, M. L.; Dong, W.; Li, K.; Aytug, T.; Evans, S. F.; Meyer, H. M. III; Moyer,B. A.; Paranthaman, M. P. Cooperative lithium Sorption in Layered Double Hydroxides Is Modulated by Colloidal (Dis)Assembly. *Chem. Mater*. **2023**, *35*, 3931–3940. https://doi.org/10.1021/acs.chemmater.3c00072
178. Hwang, I.; Huang, S.-Y.; Smith, S.; Lynch, V.; Custelcean, R.; Moyer, B. A.; Kumar, N.; Bryantsev, V. S.; Sessler, J. L. Direct Extraction of Sodium Hydroxide by Calix[4]pyrrole-Based Ion-Pair Receptors. *J. Am. Chem. Soc.* **2023**, *145*, 14387–14394.
179. Jansone Popova, S.; Shih, J.; Ivanonv, A. I.; Custelcean, R.; Kertesz, V.; Chisholm, M. F.; Moyer, B. A. Unconventional Oxa[7]helicene and Its Assembly into Hollow Nanotubular Channels in Solid State. *In preparation.*
180. Dang, D.-K.; Einkauf, J. D.; Ma, Y.-Z.; Custelcean, R.; Moyer, B. A.; Zimmerman, P.; Bryantsev, V. S. Photoisomerization Mechanism of Iminoguanidinium Receptors from Spectroscopic Methods and Quantum Chemical Calculations. *Phys. Chem. Chem. Phys.*, submitted.
181. Bessen, N. P.; Moyer, B. A. An Advanced Solvent for the Caustic-Side Solvent Extraction of Cesium from Nuclear Waste Using a Hydrolysis-Resistant Guanidine Suppressor. In preparation. (Paper #2)
182. Einkauf, J. D.; Moyer, B. A. Photoswitchable Anion Receptors. In preparation.
183. Fargher, H. A.; Haley, M. M.; Johnson, D. W.; Moyer, B. A. Disrupting the Hofmeister Bias in Salt Liquid-Liquid Extraction with an Arylethynyl Bisurea Anion Receptor. In preparation.
184. Bessen, N. P.; Moyer, B. A. Chemistry of the Next Generation Caustic-Side Solvent Extraction Process. In preparation. (Review).

### Patents

1. Moyer B. A.; McDowell, W. J. Method for Extracting Copper, Silver, and Related Metals. U. S. Patent 4,927,610, May 22, 1990. U.S. Patent Application No. 07/214,814, July 1, 1988. (Filed by DOE)
2. Moyer, B. A.; Sachleben, R. A.; Bonnesen, P. V. Process for Extracting Technetium from Alkaline Solutions. U. S. Patent 5,443,731, Aug. 22, 1995. U.S. Patent Application No. 08/278,211, July 21, 1994. (Filed by DOE)
3. Alexandratos, S. D.; Brown, G. M.; Bonnesen, P. V.; Moyer, B. A. Bifunctional Anion-Exchange Resins with Improved Selectivity and Exchange Kinetics. U. S. Patent 6,059,975, May 9, 2000. U.S. Patent Application No. 08/922,198, September 2, 1997. ORNL Invention Disclosure No. 199600212. (Filed by Lockheed Martin)
4. Kilambi, S.; Moyer, B. A.; Robinson, R. B.; Bonnesen, P. V. Supported Liquid Membrane Separation. U. S. Patent 6,086,769, Jul. 11, 2000. U.S. Patent Application No. 08/929,078, September 15, 1997. ORNL ID 199600241.
5. Kilambi, S.; Moyer, B. A.; Robinson, R. B.; Bonnesen, P. V. Supported Liquid Membrane Separation. U. S. Patent 6,096,217, (Divisional of 6,086,769), Aug. 1, 2000. U.S. Patent Application No. 09/251,087, February 16, 1999.  ORNL ID 199600241.
6. Moyer, B. A.; Sachleben, R. A.; Bonnesen, P. V.; Presley, D. J. Calixarene Crown Ether Solvent Composition and Use Thereof for Extraction of Cesium from Alkaline Waste Solutions. U.S. Patent 6,174,503, January 16, 2001. U.S. Patent Application No. 09/146,800, September 3, 1998.
7. Brown, G. M.; Gu, B.; Moyer, B. A.; Bonnesen, P. V. Regeneration of Strong-Base Anion-Exchange Resins by Sequential Chemical Displacement. U. S. Patent 6,448,299, Sept. 10, 2002. U.S. Patent Application No. 09/491,242, January 25, 2000. ORNL Invention Disclosure No. 199900699.
8. Moyer, B. A.; Chambliss, C. K.; Bonnesen, P. V.; Keever, T. J. Solvent and Process for Recovery of Hydroxide from Aqueous Mixtures. U. S. Patent 6,322,702, November 27, 2001. U.S. Patent Application No. 09/404,104, September 23, 1999. ORNL Invention Disclosure No. 199900738.
9. Bonnesen, P. V.; Moyer, B. A.; Sachleben, R. A. Fluoro-Alcohol Phase Modifiers and Process for Cesium Solvent Extraction. U.S. Patent 6,566,561, May 20, 2003. U.S. Patent Application No. 09/703,899, November 2, 2000. ORNL Invention Disclosure No. 2000802123. (Filed by DOE)
10. Peterman, D. R.; Meikrantz, D. H.; Law, J. D.; Riddle, C. L.; Todd, T. A.; Greenhalgh, M. R.; Tillotson, R. D.; Bartsch, R. A.; Moyer, B. A.; Delmau, L. H.; Bonnesen, P. V. Extractant Compositions for Co-extracting Cesium and Strontium, A Method of Separating Cesium and Strontium from an Aqueous Feed, Calixarene Compounds, U.S. Patent 8,158,088, Apr. 17, 2012. U.S. Patent Application No. 12/268,189, November 10, 2008. ORNL ID 200802123.
11. Custelcean, R. C.; Moyer, B. A.; Rajbanshi, A. Selective Oxoanion Separation Using a Tripodal Ligand, U.S. Patent 9,260,326, Feb. 16, 2016. U.S. Patent Application No. 13/485,118, May 31, 2012, Oak Ridge National Laboratory, Oak Ridge, TN. Method for Sulfate Separation, ORNL Invention Disclosure No. 201102573, Mar. 18, 2011.
12. Paranthaman, M. P.; Bhave, R. R.; Moyer, B. A.; Harrison, S. Composition for Recovery of Lithium from Brines and Process of Using Said Composition," U.S. Patent 10,266,915 B2, April 23, 2019. U. S. Patent Application 15/099, 045, April 14, 2016. ORNL Invention Disclosure No. 201303189, Sept. 30, 2013.
13. Freiderich, J. W.; Luo, H.; Moyer, B. A.; Dai, S. Methods for Liquid Extraction of Rare Earth Metals Using Ionic Liquids, U.S. Patent 10689727, June 23, 2020. U.S. Patent Application 15/135,753, April 22, 2016. Luo, H.; Dai, S.; Moyer, B. A.; Freiderich, J. W. Task Specific Ionic Liquids Extractive Metallurgy of Rare Earth Minerals, Provisional Patent Application No. 62151567, April 23, 2015. ORNL Invention Disclosure No. 201403247, 2013.
14. Williams, N. J.; Custelcean, R.; Seipp, C. A.; Moyer, B. A.; Ellis, R. J.; Abney, C. W.; Lipophilic Guanidinium Compounds for Removal of Oxyanions From Aqueous Solutions, U. S. Patent 11001554B2, May 11, 2021. U. S. Patent Application 16/369,922, March 29, 2019. Removal of Oxoanions from Aqueous Solutions by Lipophilic Receptors, Provisional Patent Application 62/649,801, March 29, 2018. ORNL Invention Disclosure No. 201704063, Jan. 5, 2018.
15. Freiderich, J. W.; Luo, H.; Moyer, B. A.; Dai, S. Rare Earth Amide Compositions, U.S. Patent 11,186,893, November 30, 2021. U.S. Patent Application 16/881,532, May 22, 2020. ORNL Invention Disclosure No. 201403247, 2013.
16. Bhave, R. R.; Harrison, S.; Moyer, B. A.; Paranthaman, M. P. Lithium Extraction Composite for Recovery of Lithium from Brines, and Process of Using Said Composition. U.S. Patent 11,253,820 B2, February 22, 2022. U.S. Patent Application No. 16/296,943, March 8, 2019. ORNL Invention Disclosure, Sept. 30, 2013.
17. Rios, O.; Henderson, H. B.; Kesler, M. S.; Moyer, B. A.; Sims, Z.; Weiss, D.; Ott, R. T.; Anderson, C. G.; Cui, H.; McCall, S. Production of Castable Light Rare Earth Rich Light Metal Compositions from Direct Reduction Processes. U.S. Patent No. 11,365,463, June 21, 2022. U.S. Patent Application No. 16/781,635, Feb. 4, 2020. Provisional Patent Application No. 62/800,582, Feb. 4, 2019. ORNL Invention Disclosure 201904322, Feb. 1, 2019.

### Pending Patent Applications

1. Bhave, R. R.; Deshmane, V.; Linneen, N. N.; Harrison, S.; Paranthaman, M. P.; Moyer, B. A. Forward Osmosis Composite Membranes for Concentration of Lithium Containing Solutions. U. S. Patent Application 16/535,585, August 8, 2019. Selective Recovery and Concentration of Lithium Chloride with Composite Membranes, Provisional Patent Application 62/716,429, August 9, 2018.
2. Jansone-Popova, S.; Bryantsev, V. S.; Moyer, B.A.; Anderson, C.; Everly D. Provisional Patent Application, joint with Colorado School of Mines, July 2019. Novel Collectors and Their Application to the Rare Earth Minerals. ORNL Invention Disclosure No. 201704008, October 13, 2017.
3. Popovs, I.; Moyer, B. A.; Johnson, K. R.; Musrock, H. Lithium Extractant Compounds and Their Use in Selective Lithium Extraction from Aqueous Solutions. U.S. Patent Application No. 17/726,890, April 22, 2022. Provisional Patent Application, No. 63/013,585, April 22, 2020. ORNL Invention Disclosure No. 201904542, December 13, 2019.
4. Paranthaman, M.P.; Lamichhane, T. N.; Moyer, B. A. Selective Extraction of Lithium from Lithium Sulfate Aqueous Solution. U.S. Patent Application No. 17/725,902, April 21, 2022. Provisional Patent Application, No. 63/012,949, April 21, 2020. ORNL Invention Disclosure No. 201904541, December 16, 2019.
5. Jansone-Popova, S.; Popovs, I.; Moyer, B. A.. Diglycolamide Derivatives for Separation and Recovery of Rare Earth Elements from Aqueous Solutions. Patent Application No. 17/366,172, July 2, 2021. Provisional Patent Application, No. 63/048,237, July 6, 2020. ORNL Invention Disclosure No. 201904329, Feb. 5, 2019.
6. Jansone-Popova, S.; Popovs, I.; Moyer, B. A.; Lyon, K. L. Methods for Separation and Recovery of Rare Earth Elements from Aqueous Solutions Using Diglycolamide Derivatives. US Patent Application No. 17/366,185, July 2, 2021. Provisional Patent Application No. 63/048,237, July 6, 2020. ORNL Invention Disclosure No. 201904329, February 5, 2019.
7. Custelcean, R.; Einkauf, J. D.; Moyer, B. A. Photoswitchable Guanidinium Compounds for Removal of Oxyanions from Liquid Solutions. US Patent Application 17/875,767, July 28, 2022. A Photoswitchable Diiminoguanidinium Receptor for Removal of Oxyanions. Provisional Patent Application No. 63/226,778, Jul 29, 2021. ANAQUA ID: 81930871. ORNL Invention Disclosure 202104893, January 14, 2021.
8. Thiele, N.; Moyer, B. A. Size-selective acyclic chelators and their use as leaching agents for the recovery of REEs. Provisional patent application No. 63/310,247, filed Feb 15, 2022. Invention Disclosure No. 202104778, January 11, 2021.
9. Popovs, I.; Healy, M. R.; Moyer, B. A. Ionic Liquid Compositions for Selective Removal of Sodium and Potassium from Lithium-Containing Aqueous Solutions. US Patent Application No. U.S. Patent Application. No.: 18/211,693, filed June 20, 2023. Provisional Patent Application No. 63/353,872, June 21, 2022. ORNL Invention Disclosure No. 201904481, September 9, 2019.

### Invention Disclosures (not yet converted to patent applications)

1. Parathaman, M. P.; Moyer, B. A. Reengineered Sorbents for Li Extraction from Ambient Temperature Geothermal Brine. Invention Disclosure Record No. 2457, Aug. 13, 2018.

### Invention Disclosures (not going forward)

1. Chisholm, M. F.; Pennycook, S. J.; Contescu, C. I.; Gallego, N. C.; Moyer, B A.; Guo, J.; Lee, J.; Pantelides, S. T. Crown Ethers in Graphene. Invention Disclosure, Oct. 29, 2014.
2. Jansone-Popova, S.; Healy, M. R.; Bryantsev, V.; Popovs, I.; Moyer, B. A. Ligands for Efficient Lanthanide (III) Separation. Invention Disclosure No. 201804150, May, 14, 2018.
3. Paranthaman, M. P.; Moyer, B. A.; Evans, S. F.; Yagues, Y. Lithium Extraction from Geothermal Brine Solutions via Nanoengineered Polymer Composite Sorbent Bead. Invention Disclosure No. 202004588, April 30, 2019. Not elected as of Jan. 25, 2022.

### Edited Books

1. Moyer, B. A.; Singh, R. P., Eds. *Fundamentals and Applications of Anion Separations*; Kluwer Academic/Plenum: New York, 2004.
2. Moyer, B. A.; Ed. *Ion Exchange and Solvent Extraction*; Vol. 19; Taylor and Francis: Philadelphia, 2010.
3. Moyer, B. A., Ed. *Solvent Extraction: Fundamentals to Industrial Applications. Proceedings of ISEC 2008 International Solvent Extraction Conference*; Tucson, AZ, Sept. 15–19, 2008; The Canadian Institute of Mining, Metallurgy and Petroleum, Montreal, 2008; Vols. 1 and 2, 1661 pp.
4. Valenzuela F., Moyer, B. A., Eds. *Proc. International Solvent Extraction Conference ISEC 2011*, Santiago, Chile, Oct. 3–7, 2011; Gecamin: Santiago, 2011.
5. Moyer, B. A., Ed. *Supramolecular Aspects of Solvent Extraction*. Ion Exchange and Solvent Extraction, A Series of Advances, Vol. 21, CRC Press: Philadelphia, PA, 2013.
6. Moyer, B. A., Ed. *Changing the Landscape in Solvent Extraction*. Ion Exchange and Solvent Extraction, A Series of Advances, Vol. 23, CRC Press: Philadelphia, PA, 2019.

### Book Chapters

1. B. A. Moyer and W. J. McDowell, "Characterization of Molybdenum Interfacial Crud in a Uranium Mill that Employs Tertiary Amine Solvent Extraction," in Hydrometallurgy: Research, Development, and Plant Practice, K. Osseo-Asare and J. D. Miller, Eds., The Metallurgical Soc. of AIME, New York (1983); pp. 503-516.
2. Moyer, B. A. Complexation and Transport. In *Molecular Recognition: Receptors for Cationic Guests*; Gokel, G. W., Ed.; *Comprehensive Supramolecular Chemistry*; Vol. 1; Atwood, J. L., Davies, J. E. D., MacNicol, D. D., Vögtle, F., Lehn, J.-M., Eds.; Pergamon, Elsevier: Oxford, 1996; pp. 377–416 (Invited review).
3. Moyer B. A.; Bonnesen, P. V. Physical Factors in Anion Separations. In *Supramolecular Chemistry of Anions*; Bianchi, A.; Bowman-James, K.; Garcia-Espana, E., Eds.; Wiley-VCH: New York, 1997; Chap. 1, pp. 1–44 (Invited review).
4. Moyer, B. A.; Sun, Y.; Principles of Solvent Extraction of Alkali Metal Ions: Understanding Factors Leading to Cesium Selectivity in Extraction by Solvation. In *Ion Exchange and Solvent Extraction*; Marcus, Y., Marinsky, J. A., Eds.; Vol. 13; Marcel Dekker: New York, 1997; Chap. 6, pp. 295–391 (Invited review).
5. R. A. Sachleben and B. A. Moyer, "Ligand Design for Small Cations: The Li+/14-Crown-4 System," in *Metal Ion Separation and Preconcentration. Progress and Opportunities*, A. H. Bond, M. L. Dietz, and R. D. Rogers, Eds., ACS Symposium Series 716, American Chemical Society, Washington, D.C., 1999; pp. 114-144 (Invited review).
6. P. V. Bonnesen, T. J. Haverlock, N. L. Engle, R. A. Sachleben, and B. A. Moyer, "Development of Process Chemistry for the Removal of Cesium from Acidic Nuclear Waste by Calix[4]arene-Crown-6 Ethers," in *Calixarene Molecules for Separations*, G. J. Lumetta, R. D. Rogers, and A. S. Gopalan, Eds., ACS Symposium Series, Vol. 757, American Chemical Society, Washington, D. C., 2000; Chap. 3, pp. 26-44.
7. L. H. Delmau, J. C. Bryan, B. P. Hay, N. L. Engle, R. A. Sachleben, and B. A. Moyer, "Benzyl Phenol Derivatives: Extraction Properties of Calixarene Fragments," in *Calixarene Molecules for Separations*, G. J. Lumetta, R. D. Rogers, and A. S. Gopalan, Eds., ACS Symposium Series, Vol. 757, American Chemical Society, Washington, D. C., 2000; Chap. 7, pp. 86-106.
8. Brown, G. M.; Bonnesen, P. V.; Moyer, B. A.; Gu, B.; Alexandratos, S. D.; Patel, V.; Ober, R. The Design of Selective Resins for the Removal of Pertechnetate and Perchlorate from Groundwater. In *Perchlorate in the Environment*; Urbansky, E. T., Ed.; Kluwer Academic/Plenum: New York, 2000; Chap. 15, pp 155–164.
9. Moyer, B. A.; Bonnesen, P. V.; Chambliss, C. K.; Haverlock, T. J.; Marchand, A. P.; Chong, H.-S.; McKim, A. S.; Krishnudu, K.; Ravikumar, K. S.; Kumar, V. S.; Takhi, M. “Use of Cage-Functionalized Macrocycles and Fluorinated Alcohols in the Liquid-Liquid Extraction of NaOH and other Sodium Salts: Strategies Toward Waste-Volume Reduction,” in *Nuclear Site Remediation: First Accomplishments of the Environmental Science Program*, ACS Symposium Series, Vol. 778; P. G. Eller and W. R. Heineman, Eds., American Chemical Society, Washington, DC, 2001; pp. 114–132 (Invited).
10. Kavallieratos, K.; Bryan, J. C.; Sachleben, R. A.; Van Berkel, G. J.; Espetia, O. D.; Kelly, M. A.; Danby, A.; Bowman-James, K.; Moyer, B. A. Dual-Host Combinations: Using Tripodal Amides to Enhance Cesium Nitrate Extraction by Crown Ethers. In *Fundamentals and Applications of Anion Separations*; B. A. Moyer and R. P. Singh, Eds.; Kluwer Academic/Plenum: New York, 2004, pp 125–150.
11. Moyer, B. A.; Birdwell, J. F., Jr.; Bonnesen, P. V.; Delmau, L. H. Use of Macrocycles in Nuclear-Waste Cleanup: A Real-World Application of a Calixcrown in Technology for the Separation of Cesium. In *Macrocyclic Chemistry—Current Trends and Future*; Gloe, K., Ed.; Springer: Dordrecht, 2005; pp 383–405 (Invited review). https://doi.org/10.1007/1-4020-3687-6\_24
12. Moyer, B. A.; Bazelaire, E.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Ditto, M. E.; Engle, N. L.; Gorbunova, M. G.; Haverlock, T. J.; Levitskaia, T. G.; Bartsch, R. A.; Surowiec, M. A.; Zhou, H. Next Generation Extractants for Cesium Separation from High-Level Waste. In *Special INASAT Bulletin, Indian Associate of Separation Scientists and Technologists,* Sawant, R. M., Mohapatra, P. K., Kalsi, P. C., Manchanda, V. K., Eds.; Perfect Prints: Thane, India, 2006; pp 32-44.
13. Moyer, B. A.; Delmau, L. H.; Fowler, C. J.; Ruas, A.; Bostick, D. A.; Sessler, J. L.; Katayev, E.; Pantos, G. D.; Llinares, J. M.; Hossain, M. A.; Kang, S. O.; Bowman-James, K. “Supramolecular Chemistry of Environmentally Relevant Anions.” In Advances in Inorganic Chemistry, Volume 59: Template Effects and Molecular Organization; van Eldik, R., Bowman-James, K., Eds.; Elsevier: Oxford; Chap. 5, pp 177–207, 2007.
14. Collins, E. D.; Del Cul, G. D.; Moyer, B. A. Advanced Reprocessing for Fission Product Separation and Extraction. In *Advanced Separation Techniques for Nuclear Fuel Reprocessing and Radioactive Waste Treatment.* Nash, K. L., Lumetta, G. J., Eds.; Woodhead: Cambridge, 2011; Chap. 8, pp 201–228. (Invited Book Chapter)
15. Moyer, B. A.; Lumetta, G. L.; Mincher, B. J. Minor Actinide Separation in the Reprocessing of Spent Nuclear Fuels: Recent Advances in the United States. In *Reprocessing and Recycling of Spent Nuclear Fuels*, Woodhead Publishing, Waltham, MA, 2015; Chap. 11, pp 289–312. (Invited Book Chapter)

### Proceedings Papers (Refereed)

1. B. A. Moyer, W. J. McDowell, and G. N. Case, "Extraction of U(VI) from Nitric Acid by Di(2-ethylhexyl) Sulfoxide, A Promising New Branched-Chain Extractant," Proc. Internat. Solvent Extraction Conf. (ISEC '83), Denver, CO, Aug. 1983; Amer. Inst. Chem. Eng., New York, 1983; pp. 441-442.
2. W. J. McDowell, D. C. Michelson, B. A. Moyer, and C. F. Coleman, "A Data Base for Solvent Extraction Chemistry," Proc. Internat. Solvent Extraction Conf. (ISEC '83), Denver, CO, Aug. 1983; Amer. Inst. Chem. Eng., New York, 1983; pp. 257-258.
3. W. J. McDowell, B. A. Moyer, S. A. Bryan, R. B. Chadwick, and G. N. Case, "Selectivity and Equilibria in Extraction with Macrocycles in Synergistic Combination with Organophilic Acids," Proc. Internat. Solvent Extraction Conf. (ISEC '86), Munchen, Sept. 11-16, 1986; Deutsche Gesellschaft fur Chemisches Apparatewesen, Chemische Technik und Biotechnologie e.V., Frankfurt am Main, 1986; pp. 477-482.
4. B. A. Moyer, W. J. McDowell, C. F. Baes, Jr., C. E. Caley, and G. N. Case, "The Extraction of Water, Nitric Acid and Uranyl Nitrate by Di-2-ethylhexyl Sulfoxide in Dodecane. An Extended Equilibrium Analysis," Proc. 2nd Internat. Conf. on Separation Science and Technology, Hamilton, Ontario, Canada, Oct. 1-4, 1989; Vol. 1, M. H. I. Baird and S. Vijayan, Eds., Canadian Soc. of Chemical Engineering, Ottawa, Ontario, Canada; pp. 173-180.
5. B. A. Moyer, C. F. Baes, Jr., S. A. Bryan, J. H. Burns, G. N. Case, G. J. Lumetta, W. J. McDowell, and R. A. Sachleben, "Developing New Chemical Tools for Solvent Extraction," Proc. First Hanford Separation Science Workshop, Richland, Washington, July 23-25, 1991; Report PNL-SA-21775, Pacific Northwest Laboratory, Richland, WA, issued May 1993; pp. II.39-II.45. (Invited paper).
6. B. A. Moyer, R. A. Sachleben, and G. N. Case, "Synergism in the Extraction of Cu(II) by Polydentate Thia Ligands Combined with Didodecylnaphthalene Sulfonic Acid," Proc. Internat. Solvent Extraction Conf. (ISEC '93), York, England, September 9-15, 1993, Vol. 1, D. H. Logsdail and M. J. Slater, Eds., Soc. for Chemical Industry, London, 1993; pp. 525-532.
7. R. A. Sachleben, B. A. Moyer, F. I. Case, and J. L. Driver, "Extraction of Alkali Metal Cations Using a Lipophilic Lariat Ether Having a C-Pivot Carboxylic Acid Sidearm," Proc. Internat. Solvent Extraction Conf. (ISEC '93), York, England, September 9-15, 1993, Vol. 2, D. H. Logsdail and M. J. Slater, Eds., Soc. for Chemical Industry, London, 1993; pp. 737-744.
8. P. V. Bonnesen, B. A. Moyer, T. J. Haverlock, V. S. Armstrong, and R. A. Sachleben, "Removal of Technetium from Alkaline Waste Media by a New Solvent Extraction Process," in *Emerging Technologies in Hazardous Waste Management VI*, D. William Tedder and Frederick G Pohland, Eds., American Academy of Environmental Engineers, Annapolis, MD, 1996; pp. 245-262.
9. P. V. Bonnesen, D. J. Presley, and B. A. Moyer, "Solvent Extraction of Technetium from Alkaline Waste Media Using Bis-4,4'(5')[(*tert*-butyl)cyclohexano-]-18-crown-6," in *Value Adding Through Solvent Extraction: Proceedings of ISEC '96* (Proc. International Solvent Extraction Conference, Melbourne, Australia, Mar. 19-23, 1996), D. C. Shallcross, R. Paimin, and L. M. Prvcic, Eds., The University of Melbourne (publisher), Melbourne, Australia, 1996; pp. 299-304.
10. R. A. Sachleben, Y. Deng, D. A. Palmer, and B. A. Moyer, "Solvent Extraction of Cesium by Substituted Crown Ethers," in *Value Adding Through Solvent Extraction: Proceedings of ISEC '96* (Proc. International Solvent Extraction Conference, Melbourne, Australia, Mar. 19-23, 1996), D. C. Shallcross, R. Paimin, and L. M. Prvcic, Eds., The University of Melbourne (publisher), Melbourne, Australia, 1996; pp. 377-382.
11. B. A. Moyer, R. A. Sachleben, Y. Sun, J. L. Driver, Z. Chen, K. L. Cavenaugh, R. W. Carter, and C. F. Baes, Jr., "Equilibria and Effect of Diluent in the Solvent Extraction of Lithium Salts by Highly Alkylated 14-Crown-4 Ethers," in *Value Adding Through Solvent Extraction: Proceedings of ISEC '96* (Proc. International Solvent Extraction Conference, Melbourne, Australia, Mar. 19-23, 1996), D. C. Shallcross, R. Paimin, and L. M. Prvcic, Eds., The University of Melbourne (publisher), Melbourne, Australia, 1996; pp. 359-364.
12. B. A. Moyer, P. V. Bonnesen, J. H. Burns, L. H. Delmau, T. J. Haverlock, D. J. Presley, R. A. Sachleben, and F. V. Sloop, "Investigating the Solvent Extraction of Technetium(VII) from Alkaline Nitrate by Crown Ethers," Proc. Third International Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation, Cadarache, France, December 12-14, 1994; OECD Nuclear Energy Agency, Paris, France, 1995; pp. 425-437.
13. P. V. Bonnesen, D. J. Presley, T. J. Haverlock, and B. A. Moyer, "Removal of Technetium from Alkaline Nuclear-Waste Media by a Solvent-Extraction Process Using Crown Ethers," in *Challenges and Innovations in the Management of Hazardous Waste, VIP-52*, R. A. Lewis and G. Subklew, Eds., Proc. 2nd International Conference on Waste Management, Washington, D.C., May 9-12, 1995, Air & Waste Management Association, Pittsburgh; pp. 192-202.
14. P. V. Bonnesen, S. D. Alexandratos, G. M. Brown, L. M. Bates, L. A. Hussain, B. A. Moyer, and V. Patel, "Selective Resins for Sorption of Technetium from Groundwater," in *Recent Developments and Future Opportunities in Separations Technology*, Topical Conference Preprints of the American Institute of Chemical Engineers 1995 Annual Meeting, Miami, FL, Nov. 12-17, 1995, Volume 2; American Institute of Chemical Engineers: New York, New York; 1995; pp 294-299.
15. B. A. Moyer, T. J. Haverlock, and R. A. Sachleben, "Ligand-Thickness Effect Leads to Enhanced Preference for Large Anions in Alkali Metal Extraction by Crown Ethers," in Solvent Extraction for the 21st Century, M. Cox, M. Hidalgo, and M. Valiente, Eds., Society of Chemical Industry, London, 2001; Proc. Internat. Solvent Extraction Conference (ISEC '99), Barcelona, Spain, July 11-16, 1999; Vol. 1, pp. 669-673.
16. B. A. Moyer, P. V. Bonnesen, L. H. Delmau, T. J. Haverlock, R. A. Sachleben, R. A. Leonard, C. Conner, and G. J. Lumetta, "Solvent Extraction of Tc and Cs from Alkaline Nitrate Wastes," in Solvent Extraction for the 21st Century, M. Cox, M. Hidalgo, and M. Valiente, Eds., Society of Chemical Industry, London, 2001; Proc. Internat. Solvent Extraction Conference (ISEC '99), Barcelona, Spain, July 11-16, 1999; Vol. 2, pp. 1365-1369.
17. T. A. Todd, J. D. Law, R. S. Herbst, G. J. Lumetta, and B. A. Moyer, "Treatment of Radioactive Wastes Using Liquid-Liquid Extraction Technologies - Fears, Facts, and Issues," Proc. Waste Management 00, Tucson, AZ, Mar., 2000.
18. T. J. Haverlock, P. V. Bonnesen, G. M. Brown, C. K. Chambliss, T. G. Levitskaia, and B. A. Moyer, “Separation of NaOH from Salts by Weak Hydroxy Acids,” Proc. Internat. Solvent Extraction Conf. (ISEC 2002), Cape Town, S. Africa, Mar. 17-21, 2002, Vol. 1, K. C. Sole P. M. Cole, J. S. Preston, D. J. Robinson, Eds., Chris van Rensburg Publications, Melville, South Africa, 2002; pp. 396-401.
19. B. A. Moyer, P. V. Bonnesen, L. H. Delmau, T. J. Haverlock, K. Kavallieratos, and T. G. Levitskaia, “Toward Recognition of the Anion in the Extraction of Alkali Metal Salts by Crown Ethers and Calixarenes,” Proc. Internat. Solvent Extraction Conf. (ISEC 2002), Cape Town, S. Africa, Mar. 17-21, 2002, Vol. 1, K. C. Sole P. M. Cole, J. S. Preston, D. J. Robinson, Eds., Chris van Rensburg Publications, Melville, South Africa, 2002; pp. 299-306.
20. P. V. Bonnesen, L. H. Delmau, T. J. Haverlock, T. G. Levitskaia, R. A. Sachleben, F. V. Sloop, Jr., and B. A. Moyer, "Science to Applications: Development of the Caustic-Side Solvent Extraction Process for Cesium Removal from Savannah River Waste", Proc. 9th Biennial Internat. Conf. Nuclear and Hazardous Waste Management (Spectrum 2002), Reno, Nevada, Aug. 4–8, 2002.
21. Delmau, L. H.; Baes, C. F., Jr.; Bostick, D. A.; Haverlock, T. J.; Moyer, B. A. Solvent Extraction System Modeling Using the Program SXFIT. In *Leaching and Solution Purification;* Hydrometallurgy 2003—Fifth International Conference in Honor of Professor Ian Ritchie, Vol. 1, Proceedings of the 2003 International Symposium on Hydrometallurgy, Vancouver, Canada, August 24–27, 2003; Young, C.A., Alfantazi, A.M., Anderson, C.G., Dreisinger, D.B., Harris, B., James, A., Eds.; TMS (The Minerals, Metals, and Materials Society): Warrendale, PA, 2003; pp. 969–981.
22. Delmau, L. H.; Bazelaire, E.; Bonnesen, P. V.; Engle, N. L.; Gorbunova, M. G.; Haverlock, T. J.; Moyer, B. A.; Ensor, D. D.; Meadors, V. M.; Harmon, B. W.; Bartsch, R. A.; Surowiec, M. A.; Zhou, H. Dramatic Improvements in Caustic-Side Solvent Extraction of Cesium Through More Efficient Stripping. In *Solvent Extraction: Fundamentals to Industrial Applications. Proceedings of ISEC 2008 International Solvent Extraction Conference*; Tucson, AZ, Sept. 15–19, 2008; Moyer, B. A., Ed.; The Canadian Institute of Mining, Metallurgy and Petroleum, Montreal, 2008; Vol. 1, pp 689–694.
23. Bartsch, R. A.; Zhou, H.; Delmau, L. H.; Moyer, B. A. Next Generation Extractants for Separation of Cesium from High-Level Waste. In *Solvent Extraction: Fundamentals to Industrial Applications. Proceedings of ISEC 2008 International Solvent Extraction Conference*; Tucson, AZ, Sept. 15–19, 2008; Moyer, B. A., Ed.; The Canadian Institute of Mining, Metallurgy and Petroleum, Montreal, 2008; Vol. 1, pp 1487–1492.
24. Bredt, P. R.; Felmy, A. R.; Gauglitz, P. A.; Poloski, A. P.; Vienna, J. D.; Moyer, B. A.; Hobbs, D.; Wilmarth, B.; McIlwain, M.; Subramanian, K.; Krahn, S.; Machara, N. Scientific Opportunities to Reduce Risk in Nuclear Process Science. Proc. Waste Management 2009 (WM 2009), Phoenix, AZ, Mar. 1–5, 2009.
25. Moyer, B. A.; Bonnesen, P. V.; Delmau, L. H.; Sloop, F. V., Jr.; Williams, N. J.; Birdwell, J. F., Jr.; Lee, D. L.; Leonard, R. A.; Fink, S. D.; Peters, T. B.; Geeting, M. W. Development of the Next-Generation Caustic-Side Solvent Extraction (NG-CSSX) Process for Cesium Removal from High-Level Tank Waste. In *Proc. Waste Management* *2011*, Phoenix, AZ, Feb. 27–Mar. 3, 2011; American Nuclear Society: Phoenix, 2011; Paper No. 11346.
26. Delmau, L. H.; Birdwell, J. F., Jr.; Bonnesen, P. V.; Ladd, N. B.; Moyer, B. A.; Stoner, E. L.; Lee, D. L.; Sloop, F. V., Jr., Next-Generation Caustic-Side Solvent Extraction (NG-CSSX) Process. Proc. International Solvent Extraction Conference ISEC 2011, Oct. 3–7, 2011, Santiago, Chile.
27. Moyer, B. A. Milestones and Future Directions in the Solvent Extraction of Caesium. In *Proc. International Solvent Extraction Conference ISEC 2011*, Santiago, Chile, Oct. 3–7, 2011; Valenzuela F., Moyer, B. A., Eds.; Gecamin: Santiago, 2011; (Plenary lecture).
28. Todd, T. A.; Moyer, B. A.; Mincher, B. J.; Law, J.; Goff, G.; Sinkov, S.; Lumetta, G. J. Oxidation and Extraction of Americiium(VI) from Lanthanides. In Nuclear Fuel Cycle for a Low-Carbon Future, Global 2015, Paris, France, September 20–24, 2015.
29. Everly, D.; Anderson, C.; Jansone-Popova, S.; Bryantsev, V.; Moyer, B. Flotation of Bastnaesite Ore Using Novel Collectors. Processing of Critical Materials Symposium, Proc. 59TH Annual Conference of Metallurgists (COM 2020): The Canadian Institute of Mining, Metallurgy and Petroleum; 13 pp. ISBN: 978-1-926872-47-6 Virtual meeting, Oct. 14–15, 2020.
30. Moyer, B. A.; Bessen, N. P. Next-Generation Solvent for Caustic-Side Solvent Extraction of Cesium from Supernatant Tank Waste. Waste Management 2023 (WM2023), Phoenix, AZ, Feb. 26–Mar. 2, 2023; American Nuclear Society: Phoenix, 2023; Paper No. 23473. Awarded “Superior” rating by WM2023. https://s3.amazonaws.com/amz.xcdsystem.com/A464D2CF-E476-F46B-841E415B85C431CC\_abstract\_File803/FinalPaper\_23473\_0301125925.pdf
31. Lyon, K. L.; Jansone-Popova, S.; Brigham, D. M.; Greenhalgh, M. R.; Welty, A. K.; Warner, M. M.; Moyer, B. A. Intralanthanide Separation Processes Using Neutral Diglycolamide Extractants. Hydrometallurgy 2023, 9th International Symposium on Hydrometallurgy, Phoenix, AZ, Aug. 20–23, 2023.

### Open-Access Reports

1. P. V. Bonnesen, R. A. Sachleben, and B. A. Moyer, "Solvent Extraction of Radionuclides from Aqueous Tank Waste," Proceedings of the Efficient Separations and Processing Crosscutting Program 1996 Technical Exchange Meeting, Gaithersburg, MD, Jan. 16-19, 1996; Report PNNL-SA-27105, Pacific Northwest National Laboratory, Richland, WA, Jan. 1996; pp. 43-46.
2. P. V. Bonnesen, B. A. Moyer, D. J. Presley, V. S. Armstrong, T. J. Haverlock, R. M. Counce, and R. A. Sachleben, "Alkaline-Side Extraction of Technetium from Tank Waste Using Crown Ethers and Other Extractants," Report ORNL/TM-13241, Oak Ridge National Laboratory, Oak Ridge, TN, June 1996.
3. B. A. Moyer, P. V. Bonnesen, R. A. Sachleben, R. A. Leonard, and G. J. Lumetta, "Solvent Extraction of Radionuclides from Aqueous Tank Waste," Report PNNL-SA-28461, Pacific Northwest National Laboratory, Richland, WA, Jan. 1997; Proceedings of the Efficient Separations and Processing Crosscutting Program 1997 Technical Exchange Meeting, Gaithersburg, MD, Jan. 28-30, 1997; pp. 4.5-4.11.
4. B. Gu, L. Liang, G. M. Brown, P. V. Bonnesen, B. A. Moyer, S. D. Alexandratos, and R. Ober, "A Field Trial of Novel Bifunctional Resins for Removing Pertechnetate (TcO4-) from Contaminated Groundwater," Report ORNL/TM-13593, Oak Ridge National Laboratory, Oak Ridge, Tennessee, Feb. 1998.
5. P. V. Bonnesen, L. H. Delmau, T. J. Haverlock, and B. A. Moyer, "Alkaline-Side Extraction of Cesium from Savannah River Tank Waste Using a Calixarene-Crown Ether Extractant," Report ORNL/TM-13704, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA, Dec. 1998.
6. L. H. Delmau, G. J. Van Berkel, P. V. Bonnesen, and B. A. Moyer, "Improved Performance of the Alkaline-Side CSEX Process for Cesium Extraction from Alkaline High-Level Waste Obtained by Characterization of the Effect of Surfactant Impurities," Report ORNL/TM-1999/209, Oak Ridge National Laboratory, Oak Ridge, TN, 1999.
7. L. H. Delmau, T. J. Haverlock, T. G. Levitskaia, F. V. Sloop, Jr., and B. A. Moyer, *Caustic-Side Solvent Extraction Chemical and Physical Properties: Equilibrium Modeling of Distribution Behavior*, Report ORNL/TM-2001/267, Oak Ridge National Laboratory, Oak Ridge, TN, Dec. 2001.
8. R. D. Spence, L. H. Delmau, L. N. Klatt, F. V. Sloop, Jr., P. V. Bonnesen, and B. A. Moyer, “Batch-Equilibrium Hot-Cell Tests of Caustic-Side Solvent Extraction (CSSX) with SRS Simulant Waste and Internal 137Cs Irradiation,” Report ORNL/TM-2001/49, Oak Ridge National Laboratory, Oak Ridge, TN, September 2001.
9. B. A. Moyer, S. D. Alexandratos, P. V. Bonnesen, G. M. Brown, J. E. Caton, Jr., L. H. Delmau, C. R. Duchemin, T. J. Haverlock, T. G. Levitskaia, M. P. Maskarinec, F. V. Sloop, Jr., and C. L. Stine, “Caustic-Side Solvent Extraction Chemical and Physical Properties: Progress in FY 2000 and FY 2001,” Report ORNL/TM-2001/285, Oak Ridge National Laboratory, Oak Ridge, TN, February 2002; 214 pp. This is the technical description of the CSSX chemistry development leading to selection of CSSX for implementation at the Savannah River Site.
10. L. H. Delmau, D. A. Bostick, T. J. Haverlock, and B. A. Moyer, “Caustic-Side Solvent Extraction: Extended Equilibrium Modeling of Cesium and Potassium Distribution Behavior,” Report ORNL/TM-2002/116, Oak Ridge National Laboratory, Oak Ridge, TN, May 2002. https://doi.org/10.2172/814253.
11. L. H. Delmau, T. J. Haverlock, and B. A. Moyer, “Caustic-Side Solvent Extraction: Anti-Caking Surfactants Found to Be Cause of Apparent Effect of High Nitrite Concentration on Cesium Stripping,” Report ORNL/TM-2002/104, Oak Ridge National Laboratory, Oak Ridge, TN, May 2002.
12. L. N. Klatt, J. F. Birdwell, Jr., P. V. Bonnesen, L. H. Delmau, L. J. Foote, D. D. Lee, R. A. Leonard, T. G. Leviskaia, M. P. Maskarinec, and B. A. Moyer, “Caustic-Side Solvent Extraction Solvent-Composition Recommendation,” Report ORNL/TM-2001/258, Oak Ridge National Laboratory, Oak Ridge, TN, Jan. 2001.
13. L. H. Delmau, J. F. Birdwell, Jr., P. V. Bonnesen, L. J. Foote, T. J. Haverlock, L. N. Klatt, D. D. Lee, R. A. Leonard, T. G. Levitskaia, M. P Maskarinec, B. A. Moyer, F. V. Sloop, Jr., and B. A. Tomkins, *Caustic-Side Solvent Extraction: Chemical and Physical Properties of the Optimized Solvent,* ORNL/TM-2002/190, Oak Ridge National Laboratory, Oak Ridge, Tennessee, October, 2002.
14. Delmau, L. H.; Haverlock, T. J.; Sloop, F. V., Jr.; Moyer, B. A. *Caustic-Side Solvent Extraction: Prediction of Cesium Extraction from Actual Wastes and Actual Waste Simulants*; Report ORNL/TM-2003/011; Oak Ridge National Laboratory, Oak Ridge, Tennessee, February 2003.
15. Bredt, P.; Felmy, A. R.; Gauglitz, P. A.; Hobbs, D.; Krahn, S.; Machara, N.; McIlwain, M.; Moyer, B. A.; Poloski, A. P.; Subramanian, K.; Vienna, J. D., Wilmarth, B. “Science Opportunities to Reduce Risk in Nuclear Process Science.” Report PNNL-17699, Pacific Northwest National Laboratory, Richland, WA, July 2008.
16. Moyer, B. A.; Birdwell, J. F., Jr.; Delmau, L. H.; McFarlane, J. “Caustic-Side Solvent Extraction Modeling for Hanford Interim Waste Pretreatment System,” Report ORNL/TM-2008/073, Oak Ridge National Laboratory, Oak Ridge, TN, June 2008; [www.osti.gov/servlets/purl/969952-xe3lsK/](http://www.osti.gov/servlets/purl/969952-xe3lsK/).
17. Delmau, L. H.; Moyer, B. A. *Solvent Blending Strategy to Upgrade MCU CSSX Solvent to Equivalent Next-Generation CSSX Solvent*; ORNL-TM 2012/580, Oak Ridge National Laboratory: Oak Ridge, TN, December 2012.
18. Moyer, B. A.; Delmau, L. H.; Duncan, N. C.; Ensor, D. D.; Hill, T. G.; Lee, D. L.; Roach, B. D.; Sloop, F. V., Jr.; Williams, N. J. *Recommended Guanidine Suppressor for the Next-Generation Caustic-Side Solvent Extraction Process*; Report ORNL/TM-2012/625, Oak Ridge National Laboratory: Oak Ridge, TN, January 2013. https://info.ornl.gov/sites/publications/Files/Pub40801.pdf
19. Moyer, B. A.; Birdwell, J. F. Jr.; Delmau, L. H.; Duncan, N. C.; Ensor, D. D.; Hill, T. G.; Lee, D. L.; Roach, B. D.; Sloop, F. V., Jr.; Stoner, E. L.; Williams, N. J. *Next Generation Solvent Development for Caustic-Side Solvent Extraction of Cesium*; Report ORNL/TM-2013/136 REV1, Oak Ridge National Laboratory: Oak Ridge, TN, June 2013.
20. [Moyer, B. A.](http://www.osti.gov/scitech/search/author/%22Moyer%2C%20Bruce%20A%22); [Birdwell, J. F.](http://www.osti.gov/scitech/search/author/%22Birdwell%20Jr%2C%20Joseph%20F%22), Jr.; [Bonnesen, P. V.](http://www.osti.gov/scitech/search/author/%22Bonnesen%2C%20Peter%20V%22); [Bruffey, S. H.](http://www.osti.gov/scitech/search/author/%22Bruffey%2C%20Stephanie%20H%22); Delmau, L. H.; [Duncan, N. C.](http://www.osti.gov/scitech/search/author/%22Duncan%2C%20Nathan%20C%22); Ensor, D. D.; [Hill, T. G.](http://www.osti.gov/scitech/search/author/%22Hill%2C%20Talon%20G%22); [Lee, D. L.](http://www.osti.gov/scitech/search/author/%22Lee%2C%20Denise%20L%22); Rajbanshi, A.; [Roach, B. D.](http://www.osti.gov/scitech/search/author/%22Roach%2C%20Benjamin%20D%22); [Szczygiel, P. L.](http://www.osti.gov/scitech/search/author/%22Szczygiel%2C%20Patricia%20L%22); [Sloop F. V.](http://www.osti.gov/scitech/search/author/%22Sloop%20Jr%2C%20Frederick%22), Jr.; [Stoner, E. L.](http://www.osti.gov/scitech/search/author/%22Stoner%2C%20Erica%20L%22); [Williams, N. J](http://www.osti.gov/scitech/search/author/%22Williams%2C%20Neil%20J%22). Next Generation Solvent Development for Caustic-Side Solvent Extraction of Cesium; Report ORNL/TM-2014/22, Oak Ridge National Laboratory: Oak Ridge, TN, March 2014. https://doi.org/10.2172/1167005
21. Sloop Jr., F. V.; Moyer, B. A. Using GC-FID to Quantify the Removal of 4-sec-Butylphenol from NGS Solvent by NaOH. Report ORNL/TM-2014/444, Oak Ridge National Laboratory, Oak Ridge, TN, December 2014.
22. Jansone-Popova, S.; Healy, M. R.; Bryantsev, V. S.; Ivanov, A. S.; Roy, S.; Moyer, B. A. Design, Synthesis and Testing Trivalent Actinide Sequestering Agents. ORNL Letter Report Number ORNL/LTR-2018/914, Oak Ridge National Laboratory, Oak Ridge, Tennessee, August 2018.
23. National Academies of Science, Engineering, and Medicine 2019. A Research Agenda for Transforming Separation Science. Washington, DC: The National Academies Press. https://doi.org/10.17226/25421. PDF available at http://nap.edu/25421.
24. Bessen, N. P.; Moyer, B. A. Density of Next-Generation Caustic-Side Solvent Extraction Solvent. ORNL/TM-2021/1975, Oak Ridge National Laboratory, Oak Ridge, Tennessee, September 2021. https://doi.org/10.2172/1819565.
25. *Innovative Separations R&D Needs for Advanced Fuel Cycles Workshop: Science-Based Technology Directions for Accelerating Nuclear Fuel Recycle*; Final workshop report to the US Department of Energy, Office of Nuclear Energy: Washington DC, 2022. https://www.osti.gov/biblio/1844866
26. Bessen, N. P.; Stamberga, D.; Moyer, B. A. Synthesis and Purity Specifications for *N*,*N*'-Dicyclohexyl-*N*"-(10-nonadecyl)guanidinium Chloride for Use in Next-Generation Caustic-Side Solvent Extraction. ORNL/TM-2022/2443, Oak Ridge National Laboratory, Oak Ridge, Tennessee, May 2022. https://doi.org/10.2172/1869073.

### Limited-Access Reports

1. B. A. Moyer, *Sigma Team for Minor Actinide Separation Annual Report*. AFCI-SEPA-PMO-MI-DV-2009-000180, Oak Ridge National Laboratory: Oak Ridge, TN, September 30, 2009.
2. B. A. Moyer, *Sigma Team for Minor Actinide Separation FY2010 Annual Report*. FCRD-SEPA-2010-000125, Oak Ridge National Laboratory: Oak Ridge, TN, September 30, 2010.
3. B. A. Moyer, *Sigma Team for Minor Actinide Separation Peer Review*. FCRD-SWF-2011-000107, Oak Ridge National Laboratory: Oak Ridge, TN, May 31, 2011.
4. B. A. Moyer, *Sigma Team for Minor Actinide Separation FY 2011 Annual Report*. FCRD-SWF-2011-000273, Oak Ridge National Laboratory: Oak Ridge, TN, September 29, 2011.
5. B. A. Moyer, *Sigma Team for Minor Actinide Separations FY2012 Accomplishments and Directions*, FCRD-SWF-2012-000302, Oak Ridge National Laboratory: Oak Ridge, TN, September 28, 2012.
6. B. P. Hay, B. A. Moyer, *Sigma Team for Minor Actinide Separations: Mixed-Donor Extractant Synthesis.* FCRD-SWF-2012-000299, Oak Ridge National Laboratory: Oak Ridge, TN, September 18, 2012.
7. B. P. Hay, L. H. Delmau, B. A. Moyer, *Sigma Team for Minor Actinide Separations: Data on Computation, Synthesis, and Testing*. FCRD-SWF-2013-000253, Oak Ridge National Laboratory: Oak Ridge, TN, August 30, 2013.
8. B. A. Moyer, *Sigma Team for Minor Actinide Separations FY2013 Accomplishments and Directions*. FCRD-SWF-2013-000389, Oak Ridge National Laboratory: Oak Ridge, TN, September 30, 2013.
9. B. A. Moyer, *Sigma Team for Minor Actinide Separations FY2014 Accomplishments and Directions*. FCRD-SWF-2014-000223, Oak Ridge National Laboratory: Oak Ridge, TN, September 30, 2014.
10. B. A. Moyer, *Sigma Team for Advanced Actinide Recycle FY2015 Accomplishments and Directions*. FCRD-MRWFD-2015-000401, Oak Ridge National Laboratory: Oak Ridge, TN, September 30, 2015.
11. Moyer, B. A. *Sigma Team for Advanced Actinide Recycle FY2015 Highlights*. FCRD-MRWFD-2015-000399, Oak Ridge National Laboratory: Oak Ridge, TN, September 15, 2015.
12. J. D. Burns, B. A. Moyer, *Co-crystallization of Actinyl Complexes: FY15 Final Report*, FCRD-MRWFD-2015-000406, Oak Ridge National Laboratory, Oak Ridge, TN, August 2015.
13. Bryantsev, V. S.; Jansone-Popova, S.; Sloop, F. V., Jr.; Custelcean, R.; Moyer, B. A. *First-Principles Prediction of An(III)/ Ln(III) Selectivity and Synthesis of Actinide Sequestering Agents*, FCRD-MRWFD-2015-000404, Oak Ridge National Laboratory, Oak Ridge, TN, August 2015.
14. Mincher, B. J.; Law, J. D.; Goff, G. S.; Moyer, B. A.; Burns, J. D.; Lumetta, G. J.; Sinkov, S. I.; Shehee, T. C.; Hobb, D. T. *Higher Americium Oxidation State Research Roadmap*, FCRD-MRWFD-2016-000251, Idaho National Laboratory, Idaho Falls, ID, December 18, 2015.
15. Bryantsev, V.; Ivanov, A.; Jansone-Popova, S.; Moyer, B. A. Using First-Principles Calculations to Facilitate the Design of Ligands for Actinide Separation. Report ORNL/TM-2016/440, Oak Ridge National Laboratory, Oak Ridge, Tennessee, August 2016.
16. Jansone-Popova, S.; Bryantsev, V.; Sloop, Jr., F. V.; Custelcean, R.; Moyer, B. A. Design, Synthesis and Testing of Trivalent Actinide Sequestering Agents. Report ORNL/TM-2016/457, Oak Ridge National Laboratory, Oak Ridge, Tennessee, August 2016.
17. Burns, J. D.; Moyer, B. A. FY16 Progress Report on Co-Crystallization. Report ORNL/TM-2016/388, Oak Ridge National Laboratory, Oak Ridge, Tennessee, August 2016.
18. Moyer, B. A. Sigma Team for Advanced Actinide Recycle FY 2016 Accomplishments and Directions. Report ORNL/LTR‑2016/606 Oak Ridge National Laboratory, Oak Ridge, Tennessee, August 2016.
19. Moyer, B. A. Sigma Team for Advanced Actinide Recycle FY 2016 Highlights. Report ORNL/LTR-2016/673 Oak Ridge National Laboratory, Oak Ridge, Tennessee, October 2016.
20. Jansone-Popova, S.; Shih, J.; Moyer, B. A.; Chisholm, M. F. Novel Functional Materials for Metal Ion Separation. Report, Oak Ridge National Laboratory, Oak Ridge, Tennessee, November 2016.
21. Burns, J. D.; Moyer, B. A. FY17 Progress Report on Co-crystallization. Report ORNL/SPR-2017/377, Oak Ridge National Laboratory, Oak Ridge, Tennessee, August 2017.
22. Moyer, B. A. Annual Meeting for Sigma Team for Advanced Actinide Recycle. Report ORNL/LTR-2017/296, Oak Ridge National Laboratory, Oak Ridge, Tennessee, June 2017.
23. Jansone-Popova, S. Kinetically-Enhanced Complexants for ALSEP. Report ORNL/LTR-2017/319, Oak Ridge National Laboratory, Oak Ridge, Tennessee, June 2017.
24. Jansone-Popova, S.; Bryantsev, V. S.; Moyer, B. A. Design, Synthesis and Testing of Trivalent Actinide Sequestering Agents. Report ORNL/SPR-2017/438, Oak Ridge National Laboratory, Oak Ridge, Tennessee, August 2017.
25. Burns, J. D.; Moyer, B. A. FY17 Progress Report on Co-crystallization. Report ORNL/SPR-2017/377, Oak Ridge National Laboratory, Oak Ridge, Tennessee, August 2017.
26. Jansone-Popova, S.; Shih, J.; Ivanov, A. I.; Custelcean, R.; Chisholm, M.; Moyer, B. A. Novel Functional Materials for Metal Ion Separation. LDRD Report 8134, Oak Ridge National Laboratory, Oak Ridge, Tennessee, November 2017.
27. Moyer, B.A. Sigma Team for Advanced Actinide Recycle FY 2017 Accomplishments and Directions. ORNL Report Number ORNL/LTR-2018/482, Oak Ridge National Laboratory, Oak Ridge, Tennessee, February 2018.
28. Mayes, R.T.; Halstenberg, P.; Moyer, B. A. Selective Recovery of Critical Materials from Geothermal Fluid. ORNL Report Number ORNL/TM-2018/798, Oak Ridge National Laboratory, Oak Ridge, Tennessee, February 2018.
29. Jansone-Popova, S.; Healy, M. R.; Bryantsev, V. S.; Ivanov, A. S. ; Roy, S.; Moyer, B. A. Design, Synthesis and Testing Trivalent Actinide Sequestering Agents. ORNL Letter Report Number ORNL/LTR-2018/914, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 2018.
30. Harmon, H. D.; Herman, D. T.; Moyer, B. A. Next Generation Solvent Formulation for the Salt Waste Processing Facility, Independent Technical Review. SRR-SWPF-20209-00049, Savannah River Remediation, LLC, Aiken, SC, July 2020.
31. Moyer, B. A. Developing Expanded Uses for Thorium to Drive Rare Earth Mining. Program Development report submitted to Moe Khaleel and Yarom Polsky, Oak Ridge National Laboratory, Oak Ridge, TN, October 2020; 15 pp.
32. Belharouak, I.; Paranthaman, M. P.; McIntyre, T.; Moyer, B. A. A National Battery-Supply-Chain Manufacturing Research Facility, Program Development report submitted to Moe Khaleel, Oak Ridge National Laboratory, Oak Ridge, TN, July 26, 2021; 26 pp.
33. Lograsso, T. Eighth Annual Report, Critical Materials Institute, May 2021. Diversifying Supply Focus Area, pp. 14–19, 47–52, Appendix 1.1.
34. Moyer, B. A.; Bessen, N. P. Recommendation of a More Stable Guanidine Suppressor for Use in the Next-Generation Caustic-Side Solvent Extraction Process. Letter to Patricia C. Suggs, US Dept. of Energy, Savannah River Operations Office, Aiken, SC, Aug. 31, 2021.
35. Moyer, B. A. "Innovative Separations R&D Needs for Advanced Fuel Cycles" Workshop, Aug. 30—Sep. 1, 2021 in fulfillment of Milestone M4FT-21OR030402026. Letter report issued to Stephen Kung, Director, Office of Materials and Chemical Technologies, USDOE Office of Nuclear Energy, Sept. 15, 2021.
36. Lograsso, T. Ninth Annual Report, Critical Materials Institute, May 2022. Diversifying Supply Focus Area, pp. 14–19, 47–52, Appendix 1.1.

## PRESENTATIONS (481 total)

1. B. A. Moyer and T. J. Meyer, "Some Redox Properties of the Novel Complex Ion Oxo-bis(2,2-bipyridineruthenium(IV)," ACS Mtg. in Miniature, Duke Univ., Durham, NC, Apr. 18, 1978.
2. B. A. Moyer, "Redox Properties, Catalytic Reactions, and Atom Transfer Reactions of (bpy)3pyRu(IV)O2+, A Novel Ruthenyl Complex," Dept. of Chemistry, Univ. of North Carolina, Chapel Hill, NC, Mar. 30, 1979.
3. T. J. Meyer, B. A. Moyer, and M. S. Thompson, "Catalytic Oxidation of Organics with [(terpy)(bpy)Ru(IV)O]2+," ACS Mtg. in Miniature, North Carolina State Univ., Apr. 17, 1979.
4. R. A. Binstead, T. J. Meyer, B. A. Moyer, and G. J. Samuels, "The Mechanism of Proton-Coupled Electron-Transfer for Aquo Complexes of Ruthenium," 180th ACS Nat. Mtg., San Francisco, CA, Aug. 24-29, 1980.
5. B. A. Moyer and W. J. McDowell, "Factors Influencing Phase Disengagement Rates in Solvent Extraction Systems Employing Tertiary Amine Extractants," Second Symp. on Separation Science and Technology for Energy Applications, Gatlinburg, TN, May 5-8, 1981.
6. B. A. Moyer, "Molybdenum-Amine Interfacial Crud in Uranium Solvent Extraction," 3rd Internat. Symp. on Hydrometallurgy, Atlanta, GA, Mar. 6-10, 1983.
7. B. A. Moyer and W. J. McDowell, "Drop-Interface Coalescence Rate in Tertiary Amine Solvent Extraction," 3rd Symp. on Separation Science and Technology for Energy Applications, Gatlinburg, TN, June 28-July 1, 1983.
8. B. A. Moyer, W. J. McDowell, and G. N. Case, "Extraction of U(VI) from Nitric Acid by Di(2-ethylhexyl)sulfoxide, A Promising New Branched-Chain Extractant," Internat. Solvent Extraction Conf. (ISEC '83), Denver, CO, Aug. 26-Sept. 2, 1983.
9. W. J. McDowell, D. C. Michelson, B. A. Moyer, and C. F. Coleman, "A Data Base for Solvent Extraction Chemistry," Internat. Solvent Extraction Conf. (ISEC '83), Denver, CO, Aug. 26-Sept. 2, 1983.
10. B. A. Moyer and W. J. McDowell, "Organic-Phase Coordination of Metal Ions by Macrocyclic Compounds," 23rd Internat. Conf. on Coordination Chemistry, Boulder, CO, July 29-Aug. 3, 1984.
11. W. J. McDowell, B. A. Moyer, G. N. Case, and F. I. Case, "Macrocycles as Solvent Extraction Reagents," Symp. on Macrocyclic Ligands: Synthesis and Applications, 4th SW Regional ACS Mtg., Lubbock, TX, Dec. 5-7, 1984.
12. W. J. McDowell, B. A. Moyer, and G. N. Case, "Sulfoxides and Macrocyclic Ethers: Potentially Useful New Reagents for Solvent Extraction Processes," Symp. on New Solvent Extraction Reagents, 189th ACS Nat. Mtg., Miami, FL, Apr. 28-May 3, 1985.
13. W. J. McDowell, B. A. Moyer, and G. N. Case, "Selectivity by Macrocycles in Synergistic Phase-Transfer Systems: Groups I and II and First-Row Transition Elements," 10th Symp. on Macrocyclic Chemistry, Provo, UT, Aug. 5-7, 1985.
14. B. A. Moyer and W. J. McDowell, "Alkane-Insoluble Trialkylammonium Double Salts Involving the Dodecamolybdophosphate Anion. II. Effect of Amine Structure on Third-Phase Formation," Fourth Symp. on Separation Science and Technology for Energy Applications, Knoxville, TN, Oct. 20-24, 1985.
15. B. A. Moyer and W. J. McDowell, "Interfacial Emulsion Formation in Tertiary-Amine Solvent Extraction," 1st Internat. Conf. on Separation Science and Technology, 191st ACS Nat. Mtg., New York, NY, Apr. 16-18, 1986.
16. S. A. Bryan, W. J. McDowell, and B. A. Moyer, "Complex Characterization Studies in the Didodecylnaphthalene Sulfonic Acid, Dicyclohexano-18-Crown-6, Sr2+ Extraction System," 1st Internat. Conf. on Separation Science and Technology, 191st ACS Nat. Mtg., New York, NY, Apr. 16-18, 1986.
17. W. J. McDowell, B. A. Moyer, S. A. Bryan, R. B. Chadwick, and G. N. Case, "Selectivity and Equilibria in Extraction with Macrocycles in Synergistic Combination with Organophilic Acids," Internat. Solvent Extraction Conf. (ISEC '86), Munich, FRG, Sept. 11-16, 1986.
18. S. A. Bryan, B. A. Moyer, R. R. Willis, and W. J. McDowell, "Spectral and Calorimetric Equilibrium Studies of Water Complexation with Crown Ethers," 193rd ACS Nat. Mtg., Denver, CO, Apr. 5-10, 1987.
19. B. A. Moyer, C. L. Westerfield, W. J. McDowell, and G. N. Case, "Selective Extraction of Cu2+ and Ag+ Ions from Sulfuric Acid by Synergistic Combinations of Tetradentate Thia Macrocycles with Didodecylnaphthalene Sulfonic Acid," Fifth Symp. on Separation Science and Technology for Energy Applications, Knoxville, TN, Oct. 26-29, 1987.
20. S-H. Kim, S. Azan, G. M. Brown, and B. A. Moyer, "Synthesis and Characterization of Nitrido-Bridged Binuclear Osmium Ammine Complexes," 195th ACS Nat. Mtg., Toronto, Ontario, Canada, June 5-11, 1988.
21. B. A. Moyer, B. A. Arndtsen, C. F. Baes, Jr., S. A. Bryan, J. H. Burns, G. N. Case, W. J. McDowell, R. J. Ontko, and R. A. Sachleben, "The Coordination Chemistry of Alkaline Earth Metals by Crown Ethers in Liquid-Liquid Extraction Systems," 5th Internat. Symp. on Inclusion Phenomena and Molecular Recognition, Orange Beach, AL, Sept. 18-23, 1988.
22. B. A. Moyer, S. A. Bryan, and R. R. Willis, "The Hydration of Crown Ethers in Carbon Tetrachloride," 5th Internat. Symp. on Inclusion Phenomena and Molecular Recognition, Orange Beach, AL, Sept. 18-23, 1988.
23. B. A. Moyer, "Using Macrocyclic Receptors to Effect the Selective Ion-Exchange of Metal Cations to Organic Solvents," North Carolina AT&T Univ., Greensboro, NC, Nov. 17, 1988 (Invited).
24. B. A. Moyer, R. A. Sachleben, C. L. Westerfield, and G. N. Case, "Cooperative Function of Thia Macrocycles and Didodecylnaphthalene Sulfonic Acid in the Selective Transfer of Cu(II) to Nonpolar Media," 197th ACS Nat. Mtg., Dallas, TX, Apr. 9-14, 1989.
25. J. H. Burns, R. A. Sachleben, and B. A. Moyer, "Synthesis and Structural Studies of a Lariat Ether Complex: Sodium *sym*-Dibenzo-14-Crown-4) Acetate Hydrate Methanolate," 197th ACS Nat. Mtg., Dallas, TX, Apr. 9-14, 1989.
26. B. A. Moyer, W. J. McDowell, C. F. Baes, Jr., C. E. Caley, and G. N. Case, "The Extraction of Water, Nitric Acid and Uranyl Nitrate by Di-2-ethylhexyl Sulfoxide in Dodecane. An Extended Equilibrium Analysis," 2nd Internat. Conf. on Separation Science and Technology, Hamilton, Ontario, Canada, Oct. 1-4, 1989.
27. C. F. Baes, Jr., B. A. Moyer, and G. N. Case, "SXLSQA, A Computer Program for Modelling Solvent Extraction Data with Inclusion of Activity Effects," Sixth Symp. on Separation Science and Technology for Energy Applications, Knoxville, TN, Oct. 22-27, 1989.
28. B. A. Moyer, C. F. Baes, Jr., S. A. Bryan, C. E. Caley, F. I. Case, G. N. Case, E. S. Ripple, R. A. Sachleben, and R. R. Willis, "Sticky Molecules in Nonpolar Solvents: Importance of Hydrogen Bonding in the Hydration and Aggregation of Polar Molecules," 199th ACS Nat. Mtg., Boston, MA, Apr. 22-27, 1990 (Invited).
29. G. J. Lumetta, B. A. Moyer, N. M. Wilson, and C. F. Baes, Jr., "Aggregation Behavior of Didodecylnaphthalenesulfonic Acid and Didodecylnaphthalenesulfonate Salts in CCl4," 8th Internat. Symp. on Surfactants in Solution, Gainesville, FL, June 10-15, 1990.
30. B. A. Moyer, G. N. Case, N. M. Wilson, and G. J. Lumetta, "Aggregative Properties of Didodecylnaphthalene Sulfonic Acid in Toluene as Studied by Computer Analysis of Cu(II) Distribution Equilibria," 8th Internat. Symp. on Surfactants in Solution, Gainesville, FL, June 10-15, 1990.
31. B. A. Moyer, C. F. Baes, Jr., W. J. McDowell, G. N. Case, and F. I. Case, "Equilibrium Analysis of the Extraction of Uranyl Nitrate from Nitric Acid by Di-2-ethylhexylsulfoxide in Dodecane," 14th Annual Actinide Separations Conf., Gatlinburg, TN, May 14-17, 1990.
32. B. A. Moyer, G. J. Lumetta, N. M. Wilson, P. A. Johnson, and G. N. Case, "Aggregative and Extractive Properties of Didodecylnaphthalene Sulfonic Acid and Macrocyclic Ethers in the Separation of Transition Metal Cations," 200th ACS Nat. Mtg., Washington, D.C., Aug. 26-31, 1990.
33. B. A. Moyer, R. A. Sachleben, J. R. Watson, N. M. Wilson, G. N. Case, and S. D. Alexandratos, "Macrocyclic and Acyclic Multidentate Thia Ethers as Synergists for Ion-Exchange Separations of Cu(II) in Solvent and Resin Extraction Systems," 201st ACS Nat. Mtg., Atlanta, GA, Apr. 14-19, 1991 (Invited).
34. R. A. Sachleben, B. A. Moyer, S. A. Kelleher, F. I. Case, S. A. Garmon, and G. J. Noeth, "Macrocycle Solubility and Organophilicity: Effect of Alkyl Substitution on the Extraction Properties of Benzo-Substituted Ionizable Lariat Ethers," 201st ACS Nat. Mtg., Atlanta, GA, Apr. 14-19, 1991 (Invited).
35. R. A. Sachleben, B. A. Moyer, J. H. Burns, W. J. McDowell, G. N. Case, F. I. Case, S. A. Bryan, and G. J. Lumetta, "Macrocycle-Mediated Cation Separations in Solvent Extraction," 201st ACS Mtg., Atlanta, GA, Apr. 14-19, 1991 (Invited).
36. B. A. Moyer, W. J. McDowell, C. F. Baes, Jr., G. N. Case, and F. I. Case, "Analysis of the Liquid-Liquid Extraction System Di-2-ethylhexylsulfoxide, Dodecane, Uranyl Nitrate, Nitric Acid, Sodium Nitrate, Water: Comparing Graphical and Computer Methods," American Inst. of Chemical Engineers Nat. Mtg., Pittsburgh, PA, Aug. 18-21, 1991 (Invited).
37. R. A. Sachleben, B. A. Moyer, F. I. Case, and S. A. Garmon, "Alkylated Lariat Ethers As Solvent Extraction Reagents: Surveying the Extraction of Alkali Metals by Bis-(*t*-octylbenzo)-14-crown-4-acetic Acid by Potentiometric Two-Phase Titrimetry," Seventh Symp. on Separation Science and Technology for Energy Applications, Knoxville, TN, Oct. 20-24, 1991.
38. B. A. Moyer, G. N. Case, G. J. Lumetta, and N. M. Wilson, "Equilibrium Analysis of Aggregation Behavior in the Extraction of Cu(II) by Didodecylnaphthalene Sulfonic Acid," Seventh Symp. on Separation Science and Technology for Energy Applications, Knoxville, TN, Oct. 20-24, 1991.
39. B. A. Moyer, C. F. Baes, Jr., S. A. Bryan, J. H. Burns, G. N. Case, G. J. Lumetta, W. J. McDowell, and R. A. Sachleben, "Developing New Chemical Tools for Solvent Extraction," First Hanford Separation Science Workshop, Richland, WA, July 23-25, 1991 (Invited).
40. B. A. Moyer, G. J. Lumetta, C. F. Baes, Jr., and G. N. Case, "Investigating the Selective Extraction of First Row Transition Metals by Use of Crown Ethers," AIChE Nat. Mtg., New Orleans, LA, Mar. 29-Apr. 2, 1992 (Invited).
41. B. A. Moyer, G. J. Lumetta, and G. N. Case, "Complexation Equilibria in the Selective Binding of Transition Metal Cations by Macrocyclic Extractants," 203rd ACS Nat. Mtg., San Francisco, CA, Apr. 5-10, 1992 (Invited).
42. M. T. Caudle, A. L. Crumbliss, P. L. Choo, F. Chaubet, and B. A. Moyer, "Thermodynamics and Kinetics of Ferric Hydroxamic Acid Complexes," 203rd ACS Nat. Mtg., San Francisco, CA, Apr. 5-10, 1992.
43. Y. Deng, G. G. Wu, B. A. Moyer, and R. M. Izatt, "Calorimetric Study of the Interaction of Divalent Transition Metal Ions with a Crown Ether: Inverting the Irving-Williams Order," XVIII Internat. Symp. on Macrocyclic Chemistry, Provo, UT, Aug. 9-14, 1992.
44. Y. Deng, G. G. Wu, B. A. Moyer, and R. M. Izatt, "Complexation of Cyclohexano-15-Crown-5 with Transition Metal Ions: A Thermodynamic Approach," 204th ACS Nat. Mtg., Washington, D.C., Aug. 23-28, 1992.
45. B. A. Moyer, Y. Deng, G. Wu, and R. M. Izatt, "Pursuing the Origin of an Inverted Irving Williams Order in the Binding and Separation of Transition Metal Ions by Crown Ethers," Symp. on Synthetic Hosts for Recognition of Molecular and Ionic Guests, 48th Southwest ACS Regional Mtg., Oct. 21-23, 1992 (Invited).
46. A. A. Kriger, S. D. Alexandratos, C. G. Ciaccio, and B. A. Moyer, "Metal Ion Separations Using Bifunctional Interpenetrating Polymer Networks," 1992 Joint 44th ACS Southeastern - 26th Middle Atlantic ACS Regional Mtg., Dec. 6-9, 1992, Arlington, VA.
47. R. A. Sachleben, J. H. Burns, M. C. Davis, J. L. Driver, Z. Chen, Y. Deng, and B. A. Moyer, "Recognition of Lithium Cation by Substituted 14-crown-4 Macrocycles," 205th ACS Nat. Mtg., Denver, CO, Mar. 28 - Apr. 2, 1993.
48. A. A. Moyer, "Oak Ridge National Laboratory: Past, Present, and Future Directions in Technology," Atomic Energy Corporation of South Africa, Pretoria, South Africa, Apr. 14, 1993 (Invited).
49. B. A. Moyer, R. A. Sachleben, and J. H. Burns, "Binding and Extraction of Alkali Metal Cations by Neutral and Ionizable Crown Ethers," Dept. of Chemistry, Univ. of the Witwatersrand, Johannesburg, South Africa, Apr. 15, 1993 (Invited).
50. B. A. Moyer, "Investigating Crown Ethers As Selective Extractants for Metal Ions," JCI Minerals Processing Research Laboratories, Randburg, South Africa, Apr. 16, 1993 (Invited).
51. B. A. Moyer and C. F. Baes, Jr., "Understanding Solvent Extraction with the Aid of a Computer," Plenary Lecture at the Internat. Symp. on Metal Ions in Solution, Malelane Lodge, Malelane, South Africa, Apr. 21-23, 1993 (Invited).
52. B. A. Moyer, "Investigating Crown Ethers As Selective Extractants for Metal Ions," Dept. of Chemistry, Univ. of Port Elizabeth, Port Elizabeth, South Africa, Apr. 27, 1993 (Invited).
53. B. A. Moyer, "Investigating Crown Ethers As Selective Extractants for Metal Ions," Dept. of Chemistry, Univ. of Natal, Durban, South Africa, Apr. 28, 1993 (Invited).
54. A. F. Baes, Jr., E. J. Reardon, and B. A. Moyer, "Ion Interaction Model Applied to the CuSO4-H2SO4-H2O System at 25 °C," 48th Annual Calorimetry Conf., Duke Univ., Durham, NC, July 18-23, 1993 (Invited).
55. R. A. Sachleben, B. A. Moyer, F. I. Case, and J. L. Driver, "Extraction of Alkali Metal Cations Using a Lipophilic Lariat Ether Having a C-pivot Carboxylic Acid Sidearm," Internat. Solvent Extraction Conf. (ISEC '93), York, England, Sept. 9-15, 1993.
56. B. A. Moyer, R. A. Sachleben, and G. N. Case, "Synergism in the Extraction of Cu(II) by Polydentate Thia Ligands Combined with Didodecylnaphthalene Sulfonic Acid," Internat. Solvent Extraction Conf. (ISEC '93), York, England, Sept. 9-15, 1993.
57. Y. Deng, J. H. Burns, and B. A. Moyer, "Interaction of a Crown Ether with Divalent First-Row Transition Metal Ions: Calorimetric, Spectroscopic, and X-ray Crystallographic Investigation," 206th ACS Nat. Mtg., Chicago, IL, Aug. 22-27, 1993.
58. Y. Sun, G. M. Brown, and B. A. Moyer, "Application of Separation and TiO2-Mediated Photodegradation to the Treatment of Waste Streams Containing Trichloroethylene," Eighth Symp. on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 24-28, 1993.
59. B. A. Moyer, G. N. Case, L. H. Delmau, S. Bajo, and C. F. Baes, Jr., "Comprehensive Equilibrium Analysis of the Complexation of Cu(II) by Tetrathia-14-Crown-4 in a Synergistic Extraction System Employing Didodecylnaphthalene Sulfonic Acid," Eighth Symp. on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 24-28, 1993.
60. R. A. Sachleben, B. A. Moyer, and J. L. Driver, "Extraction of Alkali Cations by Lipophilic Dibenzo-14-Crown-4-Carboxylic Acids," Eighth Symp. on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 24-28, 1993.
61. Z. Chen, K. L. Cavenaugh, B. A. Moyer, and R. A. Sachleben, "Multinuclear and Dynamic NMR Study of Li+ and Na+ Ions Complexation by Substituted 14-Crown-4 Ethers," 207th ACS Nat. Mtg., San Diego, CA, Mar. 13-18, 1994.
62. Y. Sun, G. M. Brown, and B. A. Moyer, "Photodegradation of Trichloroethylene Using TiO2 Suspended in Fluorocarbon Solvents," 207th ACS Nat. Mtg., San Diego, CA, Mar. 13-18, 1994 (Extended abstract published, Division of Environmental Chemistry, ACS).
63. K. L. Cavenaugh, Z. Chen, R. A. Sachleben, and B. A. Moyer, "Solvent Extraction of Li+ Ions with Substituted 14-Crown-4 Ethers Studied by 7Li Nuclear Magnetic Resonance Spectroscopy," 207th ACS Nat. Mtg., San Diego, CA, Mar. 13-18, 1994.
64. B. A. Moyer, R. A. Sachleben, Y. Sun, J. L. Driver, Z. Chen, and K. L. Cavenaugh, "Thermodynamic Aspects of the Solvent Extraction of Lithium Salts by Highly Alkylated 14-Crown-4 Ethers," XIX International Symposium on Macrocyclic Chemistry, Lawrence, Kansas, June 12-17, 1994.
65. B. A. Moyer, P. V. Bonnesen, R. A. Sachleben, V. S. Armstrong, T. J. Haverlock, and F. V. Sloop, "Exploring the Potential of Crown Ethers for Removing Technetium from Alkaline Waste," Separation Science and Technology Seminar, Battelle Pacific Northwest Laboratories, Richland, WA, Jul. 15, 1994 (Invited).
66. P. V. Bonnesen, B. A. Moyer, V. S. Armstrong, T. J. Haverlock, R. A. Sachleben, and F. V. Sloop, "Removal of Technetium from Alkaline Waste Media by a New Solvent Extraction Process," Symposium on Emerging Technologies in Hazardous Waste Management VI," Atlanta, GA, Sept. 19-21, 1994 (Extended abstract published, I&EC Division, ACS).
67. B. A. Moyer, P. V. Bonnesen, T. J. Haverlock, V. S. Armstrong, R. A. Sachleben, and F. V. Sloop, "Crown Ethers As Extractants for the Removal of Technetium from Alkaline Waste," Los Alamos National Laboratory, Nov. 18, 1994 (Invited).
68. Y. Deng, J. H. Burns, R. A. Sachleben, and B. A. Moyer, "Selective Solvent Extraction of Metal Ions by Crown Ethers and Beyond," Chinese Academy of Sciences, Beijing, China, Nov. 12, 1994.
69. Y. Deng, J. H. Burns, R. A. Sachleben, and B. A. Moyer, "Selective Solvent Extraction of Metal Ions by Crown Ethers and Beyond," Nankai University, Tianjing, China, Nov. 14, 1994.
70. Y. Deng, J. H. Burns, R. A. Sachleben, and B. A. Moyer, "Selective Solvent Extraction of Metal Ions by Crown Ethers and Beyond," Dalian Institute of Chemical Physics, Dalian, China, Nov. 21, 1994.
71. B. A. Moyer, V. S. Armstrong, P. V. Bonnesen, J. H. Burns, L. H. Delmau, T. J. Haverlock, R. A. Sachleben, and F. V. Sloop "Investigating the Solvent Extraction of Technetium(VII) from Alkaline Sodium Nitrate by Crown Ethers," Third Nuclear Energy Agency International Information Exchange Meeting, Cadarache, France, December 12-14, 1994.
72. B. A. Moyer, V. S. Armstrong, P. V. Bonnesen, J. H. Burns, L. H. Delmau, T. J. Haverlock, R. A. Sachleben, and F. V. Sloop "Crown Ethers as Extractants for the Removal of Technetium from Alkaline Waste Solutions," seminar at the Section d'Etudes et Applications des Technologies Nouvelles, Cadarache, France, December 5, 1994 (Invited).
73. R. A. Sachleben, B. A. Moyer, J. H. Burns, B. P. Hay, J. L. Driver, M. C. Davis, Z. S. Skelding, and Z. Chen, "Elucidating the Factors Influencing Lithium Recognition by Crown Ethers," Dept. of Chemistry, Univ. of Miami, Coral Gables, FL, Jan. 25, 1995.
74. Y. Deng, R. A. Sachleben, J. H. Burns, and B. A. Moyer, "Selective Solvent Extraction of Cesium by Crown Ethers," 209th ACS National Meeting, Anaheim, CA, Apr. 2-7, 1995.
75. Y. Sun, T. L. Fischer, and B. A. Moyer, "Anion and Diluent Effects in the Solvent Extraction of Alkali Metal Salts with a Lipophilic Cryptand," 209th ACS National Meeting, Anaheim, CA, Apr. 2-7, 1995.
76. T. L. Fischer, Y. Sun, and B. A. Moyer, "The Effect of Anion Size on Sodium Extraction by Macrocyclic Compounds," 209th ACS National Meeting, Anaheim, CA, Apr. 2-7, 1995.
77. A. K. Batra, Y. Deng, R. A. Sachleben, B. A. Moyer, and R. B. Robinson, "Selective Extraction of Cesium-137 Using Crown Ethers," American Filtration and Separations Society Annual Technical Conference 95, Nashville, TN, April 23-26 1995.
78. B. A. Moyer, P. V. Bonnesen, V. S. Armstrong, T. J. Haverlock, D. J. Presley, and R. A. Sachleben, "Toward Selective Solvent Extraction Processes Employing Crown Ethers for Treatment of Hanford Tank Wastes," American Filtration and Separations Society Annual Technical Conference 95, Nashville, TN, April 23-26 1995 (Invited).
79. R. A. Sachleben, B. A. Moyer, J. H. Burns, B. P. Hay, J. L. Driver, M. C. Davis, Z. S. Skelding, and Z. Chen, "Elucidating the Factors Influencing Lithium Recognition by Crown Ethers," Dept. of Chemistry, Univ. of Tennessee, Knoxville, TN, Apr. 28, 1995 (Invited).
80. P. V. Bonnesen, V. S. Armstrong, T. J. Haverlock, B. A. Moyer, D. J. Presley, and R. A. Sachleben, "Removal of Technetium from Alkaline Nuclear-Waste Media by a Solvent-Extraction Process Using Crown Ethers," 2nd International Conference on Waste Management "Challenges and Innovations in the Management of Hazardous Waste," Washington, D.C., May 9-12, 1995 (Invited).
81. A. A. Gakh, R. A. Sachleben, J. C. Bryan, and B. A. Moyer, "Triptycenocrown Ethers: A New Family of 'Paddle Wheel' Molecules," 210th ACS National Meeting, Chicago, IL, Aug. 20-24, 1995.
82. B. A. Filippov, A. K. Nardova, I. V. Mamakin, B. A. Moyer, R. A. Sachleben, J. C. Bryan, T. J. Haverlock, and P. V. Bonnesen, "Investigating the Solvent Extraction of Radionuclides from Aqueous Waste by Crown Ethers," Fifth International Conference on Radioactive Waste Management and Environmental Remediation, Berlin, Germany, Sept. 3-9, 1995 (Invited).
83. B. A. Moyer, R. A. Sachleben, J. C. Bryan, Y. Deng, T. J. Haverlock, and P. V. Bonnesen, "Investigations of the Solvent Extraction of Cesium Nitrate by Large Crown Ethers," seminar presented at the Technical Universtiy of Dresden, Dresden, Germany, Sept. 8, 1995 (Invited).
84. S. Kilambi, P. V. Bonnesen, B. A. Moyer, and R. B. Robinson, "Facilitated Transport of Pertechnetate Across Supported Liquid Membranes (SLMs)," Emerging Technologies in Hazardous Waste Management Symposium, Atlanta, GA, Sept. 17-20, 1995.
85. R. A. Sachleben, J. C. Bryan, Y. Deng, T. J. Haverlock, and B. A. Moyer, "Ion-Pair Extraction of Alkali Metal Nitrates by Lipophilic Benzo-Subsituted 24-Crown-8 Ethers," Ninth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 22-26, 1995.
86. S. Kilambi, P. V. Bonnesen, B. A. Moyer, and R. B. Robinson, "Technetium Extraction in Supported Liquid Membranes (SLMs)," Ninth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 22-26, 1995.
87. A. M. Brown, S. D. Alexandratos, L. M. Bates, P. V. Bonnesen, L. A. Hussain, B. A. Moyer, and V. Patel, "Pertechnetate Selective Resins for Remediation of Groundwater," Ninth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 22-26, 1995.
88. P. V. Bonnesen, V. S. Armstrong, T. J. Haverlock, D. J. Presley, R. A. Sachleben, and B. A. Moyer, "Diluent and Modifier Effects on Pertechnetate Extraction and Stripping Efficiency in Solvent Extraction of Technetium from Alkaline Waste Media Using Crown Ethers," Ninth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 22-26, 1995.
89. P. V. Bonnesen, S. D. Alexandratos, G. M. Brown, L. M. Bates, L. A. Hussain, B. A. Moyer, and V. Patel, "Selective Resins for Sorption of Technetium from Groundwater," American Institute of Chemical Engineers 1995 Annual Meeting, Miami, FL, Nov. 12-17, 1995.
90. R. A. Sachleben, J. C. Bryan, J. H. Burns, Y. Deng, A. A. Gakh, T. J. Haverlock, J. M. Lavis, and B. A. Moyer, "Belts to Baskets: The Effect of substituents on ;the Structure, Preorganization, and Extraction Properties of Crown Ethers," NATO Advanced Research Workshop on Physical Supramolecular Chemistry, Univ. of Miami, Jan. 8-12, 1996.
91. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, and D. J. Presley, "Chemical Basis for Separation of Technetium from Alkaline Tank Waste," 1996 American Association for the Advancement of Science (AAAS) Annual Meeting and Science Innovation Exposition, Washington, D.C., Feb. 8-13, 1996 (Invited).
92. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, G. Das, T. J. Haverlock, D. J. Presley, and R. A. Sachleben, "Anion Selectivity in Alkali Metal Extraction by Crown Ethers: Basic Chemistry Leading to a Process for Removing Pertechnetate from Waste," James Cook University, Townsville, Australia, Mar. 14, 1996.
93. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, K. L. Cavenaugh, Z. Chen, G. Das, J. L. Driver, T. J. Haverlock, D. J. Presley, R. A. Sachleben, and Y. Sun, "Chemical Equilibria in Metal Ion Separations by Crown Ethers in Liquid-Liquid Systems," The University of Melbourne, Melbourne, Australia, Mar. 19, 1996.
94. B. A. Moyer, R. A. Sachleben, Y. Sun, J. L. Driver, Z. Chen, K. L. Cavenaugh, R. W. Carter, and C. F. Baes, Jr., "Equilibria and Effect of Diluent in the Solvent Extraction of Lithium Salts by Highly Alkylated 14-Crown-4 Ethers," International Solvent Extraction Conference (ISEC '96), Melbourne, Australia, Mar. 19-23, 1996.
95. P. V. Bonnesen, D. J. Presley, and B. A. Moyer, "Solvent Extraction of Technetium from Alkaline Waste Media Using Bis-4,4'(5')[(*tert*-butyl)cyclohexano]-18-crown-6," International Solvent Extraction Conference (ISEC '96), Melbourne, Australia, Mar. 19-23, 1996.
96. R. A. Sachleben, Y. Deng, D. A. Palmer, and B. A. Moyer, "Solvent Extraction of Cesium by Substituted Crown Ethers," International Solvent Extraction Conference (ISEC '96), Melbourne, Australia, Mar. 19-23, 1996.
97. P. V. Bonnesen, D. J. Presley, R. M. Counce, and B. A. Moyer, "A Solvent-Extraction Process for Separating 'Technetium from Alkaline Tank Waste," 211th American Chemical Society National Meeting, New Orleans, LA, Mar. 24-28, 1996.
98. W. K. Kot, D. M. Bau, and B. A. Moyer, "Alkaline-Side Solvent Extraction for Removing Actinides from Hanford Complexant Concentrate Tank Waste," 211th American Chemical Society National Meeting, New Orleans, LA, Mar. 24-28, 1996.
99. J. C. Bryan, R. A. Sachleben, J. H. Burns, Y. Deng, J. M. Lavis, G. J. Bunick, and B. A. Moyer, "Structural Aspects of Large Cation Recognition by Crown Ethers," University of Tennessee, Knoxville, TN, Mar. 28, 1996.
100. J. C. Bryan, R. A. Sachleben, J. H. Burns, Y. Deng, J. M. Lavis, G. J. Bunick, and B. A. Moyer, "Structural Aspects of Large Cation Recognition by Crown Ethers," Georgetown University, Washington, DC, Apr. 1, 1996.
101. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, G. Das, T. J. Haverlock, D. J. Presley, R. A. Sachleben, and Y. Sun, "Basic Chemistry Leading to a Process Application in Nuclear-Waste Treatment: Anion Selectivity in Crown Ether Extraction of Alkali Metal Cations," University of Alabama at Birmingham, Birmingham, Alabama, May 3, 1996 (Invited).
102. B. A. Moyer, T. J. Haverlock, P. V. Bonnesen, J. C. Bryan, and R. A. Sachleben, "Extraction of Cesium from Simulated Hanford Tank Supernatant Waste by Calix[4]arene-bis-(2,3-naphtho-crown-6)," 20th Annual Actinide Separations Conference, Itasca, Illinois, Jun. 10-13, 1996 (Invited).
103. R. A. Sachleben, J. C. Bryan, J. H. Burns, Y. Deng, T. J. Haverlock, J. M. Lavis, and B. A. Moyer, "Belts to Baskets: The Effect of Substituents on the Structure, Preorganization, and Extraction Properties of Crown Ethers," Chemistry Division Seminar, Argonne National Laboratory, Argonne, IL, Oct. 21, 1996.
104. B. A. Moyer, P. V. Bonnesen, R. A. Sachleben, R. A. Leonard, and G. J. Lumetta, "Solvent Extraction of Radionuclides from Aqueous Tank Waste," Efficient Separations and Processing Crosscutting Program 1997 Technical Exchange Meeting, Gaithersburg, MD, Jan. 28-30, 1997.
105. B. A. Moyer, P. V. Bonnesen, R. A. Sachleben, J. C. Bryan, D. J. Presley, T. J. Haverlock, and G. Das, "Killing Three Birds With One Stone: A Solvent Extraction Strategy," 1997 American Association for the Advancement of Science (AAAS) Annual Meeting and Science Innovation Exposition, Seattle, WA, Feb. 13-18, 1997 (Invited).
106. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, D. J. Presley, R. A. Sachleben, and Y. Sun, "Basic Chemistry of Crown Ethers as Extractants for Alkali Metal Salts in Liquid-Liquid Systems," Argonne National Laboratory, Argonne, IL, Mar. 3, 1997 (Invited).
107. A. M. Brown, P. V. Bonnesen, D. J. Presley, L. M. Bates, B. A. Moyer, S. D. Alexandratos, V. Patel, B. Gu, and L. Liang, "Resins for Selective Sorption of Technetium from Groundwater," 213th American Chemical Society National Meeting, San Francisco, CA, Apr. 13-17, 1997.
108. B. Das, R. A. Sachleben, T. Descazeaud, J. C. Bryan, and B. A. Moyer, "Partial Cone Calix[4]arene-Crown-6 Ethers," 213th American Chemical Society National Meeting, San Francisco, CA, Apr. 13-17, 1997.
109. R. A. Sachleben, J. H. Burns, T. J. Haverlock, P. V. Bonnesen, J. C. Bryan, and B. A. Moyer, "Substituent Effects in the Complexation and Extraction of Sodium Salts of Monovalent Anions by Bibrachial Dibenzo-14-Crown-4 Lariat Ethers," 213th American Chemical Society National Meeting, San Francisco, CA, Apr. 13-17, 1997.
110. R. A. Sachleben, J. C. Bryan, J. H. Burns, Y. Deng, A. A. Gakh, T. J. Haverlock, J. M. Lavis, and B. A. Moyer, "Belts to Baskets: The Effect of Substituents on the Structure, Preorganization, and Extraction Properties of Crown Ethers," Dept. of Chemistry, Hunter College, CUNY, NY, June 16, 1997. (Invited.)
111. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, R. A. Sachleben, D. J. Presley, and T. J. Haverlock, "Transferring Ions from One Liquid Phase to Another: Fundamental Principles and Their Application to Nuclear-Waste Separations with Crown Ethers," 1997 Green Chemistry and Engineering Conference: Implementing Vision 2020 for the Environment, Washington, D.C., June 23-25, 1997 (Invited).
112. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, D. J. Presley, and R. A. Sachleben, "From Basic Research on Crown Ethers to Processes for Remediation of Nuclear Waste," University of Maryland, Chemistry Seminar, June 25, 1997 (Invited).
113. B. A. Moyer, P. V. Bonnesen, G. M. Brown, L. M. Bates, D. J. Presley, B. Gu, L. Liang, S. D. Alexandratos, V. Patel, R. Ober, and L. A. Hussain, "New Anion Exchange Resins Having Two Quaternary Ammonium Functionalities for Both Rapid Kinetics and Enhanced Selectivity for Pertechnetate Anion in Groundwater Remediation," 1997 Gordon Conference on Reactive Polymers, Ion Exchange, and Adsorbents, Henniker, NH, July 20-25, 1997.
114. C. K. Chambliss, M. A. Odom, C. M. Morales, B. A. Moyer, C. R. Martin, S. H. Strauss, "Redox-Recyclable Anion-Exchange Materials Containing Physisorbed Redox-Active Organometallic Complexes," 214th American Chemical Society National Meeting, Las Vegas, NV, Sept. 7-11, 1997.
115. R. A. Sachleben and B. A. Moyer, "Ligand Design for Small Cations: The Li+/14-Crown-4 System," 214th American Chemical Society National Meeting, Las Vegas, NV, Sept. 7-11, 1997.
116. T. J. Haverlock, P. V. Bonnesen, R. A. Sachleben, and B. A. Moyer, "Cs/K Selectivity of a Lipophilic Calix[4]arene-Crown-6 Extractant in Liquid-Liquid Separations from Nitrate Media," 214th American Chemical Society National Meeting, Las Vegas, NV, Sept. 7-11, 1997.
117. B. A. Moyer, P. V. Bonnesen, R. A. Sachleben, D. J. Presley, R. A. Leonard, C. Conner, G. F. Vandegrift, and G. J. Lumetta, "Alkaline-Side Solvent Extraction of Cs, Sr, and Tc," The Symposium on Science and Technology for Disposal of Radioactive Tank Wastes, 214th American Chemical Society National Meeting, Las Vegas, NV, Sept. 7-11, 1997.
118. P. V. Bonnesen, D. J. Presley, T. J. Haverlock, R. A. Sachleben, A. A. Gakh, and B. A. Moyer, "Investigating Cooperativity Between a Calixarene-Crown Ether and its Solvation Environment on the Extractability of Cesium," 214th American Chemical Society National Meeting, Las Vegas, NV, Sept. 7-11, 1997.
119. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, D. J. Presley, and R. A. Sachleben, "Crown Compounds as Separation Agents for Environmental Remediation: From Basic Concepts to Applications," Symposium on Molecular Sciences for the Environment, Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory, Oct. 15-17, 1997 (Invited).
120. G. M. Brown, P. V. Bonnesen, D. J. Presley, L. M. Bates, B. A. Moyer, S. D. Alexandratos, V. Patel, B. Gu, L. Liang, and R. Ober, "The Development of New Bifunctional Resins for the Selective Sorption of Technetium from Groundwater," Tenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 20-24, 1997.
121. R. A. Sachleben, T. J. Haverlock, J. C. Bryan, P. V. Bonnesen, and B. A. Moyer, "Effect of Modifiers on the Extraction of Cesium and Sodium by Two Cesium-Selective Crown Ethers," Tenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 20-24, 1997.
122. R. A. Leonard, C. Conner, G. F. Vandegrift, P. V. Bonnesen, B. A. Moyer, and D. J. Presley, "Development and Testing of the SRTALK Process," Tenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 20-24, 1997.
123. P. V. Bonnesen, D. J. Presley, T. J. Haverlock, R. A. Sachleben, G. Das, and B. A. Moyer, "Development of an Alkaline-Side Solvent Extraction Process for the Removal of Cesium from Tank Waste," Tenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 20-24, 1997.
124. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, and R. A. Sachleben, "The Role of the Anion in Alkali Metal Extraction and the Potential for Anion Discrimination," Tenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 20-24, 1997 (Invited).
125. B. A. Moyer, "Trends in Solvent Extraction and Related Liquid-Liquid Separation Techniques," 5th Chemical Congress of North America, Cancun, Mexico, Nov., 1997 (Invited).
126. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, and R. A. Sachleben, "Ligand-Thickness Effect Leads to Enhanced Preference for Large Anions in Alkali Metal Extraction by Crown Ethers," Dept. of Chemistry, University of Kansas, Lawrence, Kansas, Feb. 24, 1998.
127. G. M. Brown, P. V. Bonnesen, D. J. Presley, L. M. Bates, B. A. Moyer, S. D. Alexandratos, R. Ober, V. Patel, B. Gu, and L. Liang, "Novel Bifunctional Resins for the Selective Sorption of Pertechnetate Ion," AIChE 1998 Spring National Meeting, New Orleans, LA, Mar. 8-12, 1998.
128. B. A. Moyer, P. V. Bonnesen, R. A. Sachleben, T. J. Haverlock, D. J. Presley, R. A. Leonard, C. Conner, G. J. Lumetta, T. A. Todd, and D. J. Wood, "Fission Product Solvent Extraction," Efficient Separations and Processing Crosscutting Program 1998 Technical Exchange Meeting, Augusta, GA, Mar. 17-19, 1998.
129. G. M. Brown, P. V. Bonnesen, D. J. Presley, L. M. Bates, B. A. Moyer, S. D. Alexandratos, R. Ober, V. Patel, B. Gu, and L. Liang, "Selective Sorption of Technetium from Groundwater," Proceedings of the Efficient Separations and Processing Crosscutting Program 1998 Technical Exchange Meeting, Augusta, GA, Mar. 17-19, 1998.
130. A. C. Bryan, R. A. Sachleben, B. A. Moyer, A. Urvoas, B. Chakoumakos, and B. P. Hay, "Cesium-Arene Interactions as a Critical Component in Selective Extraction," 215th American Chemical Society National Meeting, Dallas, TX, Mar. 29 - Apr. 2, 1998.
131. B. A. Moyer, "Trends in Liquid-Liquid Separations of Metal Ions: Selectivity, Efficiency, Recovery, and Other Issues," Metals Adsorption Workshop, Cincinnati, OH, May 5-6, 1998 (Invited).
132. R. A. Sachleben, J. C. Bryan, P. V. Bonnesen, T. J. Haverlock, and B. A. Moyer, "Developing New Solvent Extraction Systems: From Fundamental Principles to Practical Processes," University of Twente, Netherlands, June, 17, 1998.
133. R. A. Sachleben, J. C. Bryan, P. V. Bonnesen, T. J. Haverlock, and B. A. Moyer, "Developing New Solvent Extraction Systems: From Fundamental Principles to Practical Processes," University of Parma, Italy, June, 19, 1998.
134. R. A. Sachleben, J. C. Bryan, P. V. Bonnesen, T. J. Haverlock, and B. A. Moyer, "Developing New Solvent Extraction Systems: From Fundamental Principles to Practical Processes," University Louis Pasteur, Strasbourg, Strasbourg, France, June, 23, 1998.
135. B. A. Moyer, R. A. Sachleben, J. C. Bryan, T. J. Haverlock, M. L. Dietz, R. Chiarizia, B. P. Hay, J. B. Nicholas, D. A. Dixon, and S. D. Alexandratos "Design and Synthesis of the Next Generation of Crown Ethers for Waste Separations," DOE EMSP Scientific Workshop, Chicago, IL., July 27-July 30, 1998.
136. G. M. Brown, F. V. Sloop, Jr., B. A. Moyer, C. H. Ho, L. Maya, T. J. Meyer, and P. M. Narula, "Utilization of Kinetic Isotopes Effects for the Concentration of Tritium," DOE EMSP Scientific Workshop, Chicago, IL., July 27-July 30, 1998.
137. A. Bowman-James, K. Kuczera, G. S. Wilson, and B. Moyer, "Anion Recognition and Binding," DOE EMSP Scientific Workshop, Chicago, IL, July 27 - July 30, 1998.
138. G. M. Brown, F. V. Sloop, Jr., B. A. Moyer, and T. J. Meyer, "Deuterium and Tritium Kinetic Isotope Effects for the Oxidation of Formate by Ruthenium(IV) Oxo Compounds,"216th American Chemical Society National Meeting, Boston, MA, Aug. 23-27, 1998.
139. B. A. Moyer, P. V. Bonnesen, R. A. Sachleben, T. J. Haverlock, D. J. Presley, R. A. Leonard, C. Conner, and G. J. Lumetta, "Alkaline-Side Solvent Extraction of Tc," Hanford Tank Waste Chemistry Technetium Workshop, Richland, WA, Sept. 22, 1998 (Invited).
140. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, and R. A. Sachleben, "Ligand-Thickness Effect Leads to Enhanced Preference for Large Anions in Alkali Metal Extraction by Crown Ethers," Dept. of Chemistry, Brigham Young University, Provo, UT, Sept. 28, 1998 (Invited).
141. B. A. Moyer, “Separating Anions from Nuclear Waste: Principles and Applications,” Dept. of Chemistry, Univ. of Oklahoma, Norman, OK, Nov. 10, 1998 (Invited).
142. B. A. Moyer, “Principles Pertaining to Anion Selectivity in Liquid-Liquid Separations,” Dept. of Chemistry, Univ. of North Texas, Denton, TX, Nov. 11, 1998.
143. R. A. Sachleben, B. A. Moyer, J. C. Bryan, and A. P. Marchand, "Ion Recognition Approach to Volume Reduction of Alkaline Tank Waste by Separation and Recycle of Sodium Hydroxide and Sodium Nitrate," EMSP Tanks Focus Area (TFA) Workshop, Richland, WA, Nov. 17-18, 1998.
144. R. A. Sachleben, J. C. Bryan, N. L. Engle, B. Franconville, T. J. Haverlock, B. P. Hay, A. Urvoas, and B. A. Moyer, "Optimizing Cesium-Selective Extraction by Calix[4]arene Crown Ethers Through Ligand Design," 217th American Chemical Society National Meeting, Anaheim, CA, Mar. 21-26, 1999 (Invited).
145. B. A. Moyer, P. V. Bonnesen, L. H. Delmau, T. J. Haverlock, R. A. Sachleben, R. A. Leonard, C. Conner, and G. F. Vandegrift, “Alkaline-Side CSEX Process for Savannah River High-Level Waste,” 217th American Chemical Society National Meeting, Anaheim, CA, Mar. 21-26, 1999 (Invited).
146. P. V. Bonnesen, T. J. Haverlock, R. A. Sachleben, N. L. Engle, and B. A. Moyer, "Development of Process Chemistry for the Removal of Cesium from Acidic Nuclear Waste by Calix[4]arene-Crown-6 Ethers," 217th American Chemical Society National Meeting, Anaheim, CA, Mar. 21-26, 1999 (Invited).
147. T. G. Levitskaia, J. C. Bryan, R. A. Sachleben, B. A. Moyer, J. D. Lamb, “Role of Cagelike Crown Ether Complexes with Cs+ Ion in Providing Clefts for Neutral or Anionic Guests,” 217th American Chemical Society National Meeting, Anaheim, CA, Mar. 21-26, 1999 (Invited).
148. A. Kavallieratos, R. A. Sachleben, J. C. Bryan, B. A. Moyer, A. M. Danby, and K. Bowman-James, “New Anion Receptors and Their Role in Solvent Extraction,” 217th American Chemical Society National Meeting, Anaheim, CA, Mar. 21-26, 1999 (Invited).
149. B. Delmau, J. C. Bryan, R. A. Sachleben, B. P. Hay, B. A. Moyer, “Benzyl Phenol Derivatives: Building Blocks for Calixarenes,“ 217th American Chemical Society National Meeting, Anaheim, CA, Mar. 21-26, 1999 (Invited).
150. J. C. Bryan, T. G. Levitskaia, R. A. Sachleben, J. D. Lamb, and B. A. Moyer, "Unusual Solvent/Cesium Interactions: Structural Origins and Challenges for Separations," Third DOE/BES Separations Research Workshop, Savannah, GA, May 12-14, 1999.
151. R. A. Sachleben, J. C. Bryan, and B. A. Moyer, "Anion Recognition: A New Tool for Enhancing Ion-Pair Extraction," Third DOE/BES Separations Research Workshop, Savannah, GA, May 12-14, 1999.
152. G. M. Brown, C.-H. Ho, P. M. Narula, L. Maya, T. J. Meyer, B. A. Moyer, and F. V. Sloop, "Concentration of Tritium Based on Large Primary Kinetic Isotope Effects in Catalytic Redox Processes," Brookhaven National Laboratory, June 23, 1999.
153. B. A. Moyer, T. J. Haverlock, J. C. Bryan, and R. A. Sachleben, "Ligand-Thickness Effect Leads to Enhanced Preference for Large Anions in Alkali Metal Extraction by Crown Ethers," Internat. Solvent Extraction Conference (ISEC '99), Barcelona, Spain, July 11-16, 1999.
154. B. A. Moyer, P. V. Bonnesen, L. H. Delmau, T. J. Haverlock, R. A. Sachleben, R. A. Leonard, C. Conner, and G. J. Lumetta, "Solvent Extraction of Tc and Cs from Alkaline Nitrate Wastes," Internat. Solvent Extraction Conference (ISEC '99), Barcelona, Spain, July 11-16, 1999.
155. G. M. Brown, P. V. Bonnesen, B. A. Moyer, B. Gu, S. D. Alexandratos, V. Patel, and R. Ober, "The Design of Selective Resins for the Removal of Pertechnetate and Perchlorate from Groundwater," Dept. of Chemistry, Univ. of California – Berkeley, Berkeley, CA, July 14, 1999.
156. G. M. Brown, C.-H. Ho, L. Maya, B. A. Moyer, F. V. Sloop, P. M. Narula, and T. J. Meyer, "Utilization of Kinetic Isotope Effects for the Concentration of Tritium," USDOE Site Technology Coordination Group, DOE Oakland Office, Oakland, CA, July 13, 1999.
157. J. C. Bryan, T. G. Levitskaia, R. A. Sachleben, J. D. Lamb, and B. A. Moyer, "Unusual Solvent/Cesium Interactions: Structural Origins and Challenges for Separations," Environmental Molecular Sciences Symposia, Jul. 21-24, 1999.
158. R. A. Sachleben, J. C. Bryan, N. L. Engle, B. Franconville, T. J. Haverlock, A. Urvoas, and B. A. Moyer, "Recent Developments in Enhanced Cesium-Selective Extractants: Calix[4]arene Crown-6 Ethers," DuPont Pharmaceuticals, N. Billerica, MA, Aug. 6, 1999.
159. G. M. Brown, P. M. Narula, F. V. sloop, and T. J. Meyer, "Electrocatalytic Enrichment of Isotopes of Hydrogen in Protio- and Deuterio-Formate in Oxidation Reactions," 218th American Chemical Society National Meeting, New Orleans, LA, Aug. 22-24, 1999.
160. B. A. Moyer, "Chemical Principles and Their Use Toward Remediation of Radioactive Contamination in Wastes and the Environment," 218th American Chemical Society National Meeting, New Orleans, LA, Aug. 22-24, 1999 (Invited tutorial lecture).
161. A. P. Marchand, H.-S. Chong, A. S. McKim, K. Krishnudu, K. S. Ravikumar, V. S. Kumar, M. Takhi, B. A. Moyer, C. K. Chambliss, P. V. Bonnesen, and J. C. Bryan, "Cage-Functionalized, Nitrogen-Containing Macrocycles and Podands; Potential New Host Systems for Extraction of NaOH from Wastes," 218th American Chemical Society National Meeting, New Orleans, LA Aug. 22-24, 1999.
162. G. M. Brown, P. V. Bonnesen, B. A. Moyer, B. Gu, S. D. Alexandratos, V. Patel, and R. Ober, "The Design of Selective Resins for the Removal of Pertechnetate and Perchlorate from Groundwater," 218th American Chemical Society National Meeting, New Orleans, LA, Aug. 22-24, 1999.
163. R. A. Sachleben, J. C. Bryan, N. L. Engle, B. Franconville, T. J. Haverlock, B. P. Hay, A. Urvoas, and B. A. Moyer, "Calix[4]arene Crown-6 Ethers: Recent Developments in Enhanced Cesium-Selective Extractants," 218th American Chemical Society National Meeting, New Orleans, LA, Aug. 22-24, 1999.
164. G. M. Brown, C.-H. Ho, L. Maya, B. A. Moyer, F. V. Sloop, Jr., P. M. Narula, S. A. Trammell, and T. J. Meyer, "Utilization of Kinetic Isotope Effects for the Concentration of Tritium," USDOE Oak Ridge Operations Environmental Management Science Program Workshop, Oak Ridge, TN, Sept. 22, 1999.
165. R. A. Sachleben, J. C. Bryan, N. L. Engle, B. Franconville, T. J. Haverlock, B. P. Hay, A. Urvoas, and B. A. Moyer, "Making the Best Even Better: Enhancing the Cesium Selectivity of Calixarene Crown Ethers Through Ligand Design," Fifth Internat. Conf. on Calixarene Chemistry, Perth, Australia, Sept. 19-23, 1999.
166. G. M. Brown, P. V. Bonnesen, B. A. Moyer, B. Gu, S. D. Alexandratos, V. Patel, and R. Ober, "Pertechnetate and Perchlorate Selective Ion Exchange Resins," Southeast Regional American Chemical Society Meeting, Knoxville, TN, Oct. 17-20, 1999 (Invited).
167. K. Kavallieratos, R. A. Sachleben, J. C. Bryan, G. J. Van Berkel, B. A. Moyer, A. M. Danby, and K. Bowman-James, "A Dual-Host Strategy in Ion-Pair Extraction – Tripodal Anion Hosts Enhance Cs Extraction by Crown Ethers," Southeast Regional American Chemical Society Meeting, Knoxville, TN, Oct. 17-20, 1999 (Invited).
168. J. C. Bryan, T. G. Levitskaia, K. Kavallieratos, R. A. Sachleben, J. D. Lamb, and B. A. Moyer, "Recognition of Solvent Molecules by Cesium Tetrabenzo-24-Crown-8. A Structural Study," Southeast Regional American Chemical Society Meeting, Knoxville, TN, Oct. 17-20, 1999 (Invited).
169. T. G. Levitskaia, J. C. Bryan, R. A. Sachleben, J. D. Lamb, and B. A. Moyer, "Coordination and Equilibrium Aspects of the Cesium Complexation by Tetrabenzo-24-Crown-8 Ligands," Eleventh Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 18-21, 1999.
170. T. J. Haverlock, P. V. Bonnesen, R. A. Sachleben, and B. A. Moyer, "The Relationship between Species and Selectivity in the Extraction of Cesium and Potassium Nitrate by Calix[4]arene-bis(*t*-octylbenzo-crown-6) in 1,2-Dichloroethane," Eleventh Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 18-21, 1999.
171. G. M. Brown, B. Gu, P. V. Bonnesen, B. A. Moyer, S. D. Alexandratos, R. Ober, J. A. Dale, S. Plant, "Bifunctional Anion Exchange Resins with High Selectivity and Improved Kinetics for Processing Pertechnetate and Perchlorate Contaminated Groundwater," Eleventh Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 18-21, 1999.
172. A. H. Delmau, P. V. Bonnesen, T. J. Haverlock, R. A. Sachleben, and B. A. Moyer, "Alkaline-Side Cesium Removal Process for Savannah River High-Level Wastes," Eleventh Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 18-21, 1999.
173. B. A. Moyer, "An Overview of the R&D in Separation Science and Technology in the USA and Future Trends. Environmental and Waste Problems of the USDOE," Japan Atomic Energy Research Institute, Tokai-mura, Ibaraki, Japan, Nov. 12, 1999 (Invited).
174. B. A. Moyer, "Selective Extraction of Metal Ions by Crown Ethers: Principles and Applications," National Institute for Resources and Environment, Tsukuba, Ibaraki, Japan, Nov. 15, 1999.
175. B. A. Moyer, "New Separation Technologies for Rad-Waste Management: Metal Separation Processes Developed at ORNL," Japan Atomic Energy Research Institute, Tokai-mura, Ibaraki, Japan, Nov. 17, 1999 (Invited).
176. B. A. Moyer, "Principles and Applications of Crown Ethers for Selective Extraction of Metals from Wastes," Himeji Institute of Technology, Himeji, Japan, Nov. 19, 1999.
177. B. A. Moyer, "Equilibrium Modeling of Solvent Extraction Data with the Program SXLSQI," Japan Atomic Energy Research Institute, Tokai-mura, Ibaraki, Japan, Nov. 24, 1999 (Invited).
178. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, R. A. Leonard, C. Conner, and G. J. Lumetta, "Solvent Extraction of Technetium(VII) from Alkaline Waste Using Crown Ethers: Fundamental Principles and Process Chemistry," The Second Japanese-Russian Seminar on Technetium, Shizuoka, Japan, Nov. 29-Dec. 2, 1999, Shizuoka, Japan (Invited).
179. B. A. Moyer, "Crown Ethers for Selective Extraction of Metal Ions: From Fundamental to Applied Chemistry," Kyoto University, Kyoto, Japan, Dec. 4, 1999.
180. B. A. Moyer, P. V. Bonnesen, C. K. Chambliss, T. J. Haverlock, A. P. Marchand, H.-S. Chong, A. S. McKim, K. Krishnudu, K. S. Ravikumar, V. S. Kumar, and M. Takhi, "Ion-Pair Recognition: Targeting NaOH," Dept. of Chemistry, Univ. of North Texas, Jan. 19, 2000.
181. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, R. A. Leonard, C. Conner, and G. J. Lumetta, "Solvent Extraction of Fission Products from Alkaline Nuclear Waste," Syracuse University, Syracuse, NY, Jan. 26, 2000 (Invited).
182. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, R. A. Leonard, T. G. Levitskaia, K. Kavallieratos, R. A. Sachleben, and G. J. Van Berkel, "Fundamental Research Toward a Process for Nuclear-Waste Treatment: Cesium Separation Using Calix-Crown Ethers," Dept. of Chemistry, Virginia Polytechnic Institute & State University, Blacksburg, VA, Mar. 3, 2000 (Invited).
183. P. V. Bonnesen, L. H. Delmau, N. L. Engle, T. J. Haverlock, B. A. Moyer, D. J. Presley, and R. A. Sachleben, “The Effect of Alcohol Solvent Modifier Structure on Cesium Extraction Performance by Calix[4]arene Crown Ethers,” 219th National Meeting of the American Chemical Society, San Francisco, CA, Mar. 26-31, 2000 (Invited).
184. L. H. Delmau, T. J. Lefranc, P. V. Bonnesen, G. J. Van Berkel, and B. A. Moyer, “Fundamental Studies Regarding Synergism Between a Calix[4]arene Biscrown-6 Ether and Selected Modifiers in the Solvent Extraction of Cesium,” 219th National Meeting of the American Chemical Society, San Francisco, CA, Mar. 26-31, 2000 (Invited).
185. K. Kavallieratos, J. C. Bryan, M. A. Kelly, G. J. Van Berkel, R. A. Sachleben, B. A. Moyer, A. M. Danby, and K. Bowman-James, “Anion Hosts as Efficient Tools for Enhancing Ion-Pair Extraction,” 219th National Meeting of the American Chemical Society, San Francisco, CA, Mar. 26-31, 2000 (Invited).
186. J. C. Bryan, T. G. Levitskaia, K. Kavallieratos, R. A. Sachleben, J. D. Lamb, and B. A. Moyer, “Molecular-Recognition in Clefts Formed by Cesium-Tetrabenzo-24-Crown-8.” 219th National Meeting of the American Chemical Society, San Francisco, CA, Mar. 26-31, 2000 (Invited).
187. C. F. Baes, Jr. and B. A. Moyer, "Detailed SXLSQI Modeling of the Extraction of U(VI) from Aqueous Nitrate Solutions by Di(2-ethylhexyl)sulfoxide (DEHSO) in Dodecane," 219th National Meeting of the American Chemical Society, San Francisco, CA, Mar. 26-31, 2000 (Invited).
188. P. V. Bonnesen, L. H. Delmau, B. A. Moyer, and R. A. Leonard, "Development of a Robust Alkaline-Side CSEX Solvent Suitable for Removing Cesium from Savannah River High-Level Wastes," 219th National Meeting of the American Chemical Society, San Francisco, CA, Mar. 26-31, 2000.
189. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, C. K. Chambliss, L. H. Delmau, T. J. Haverlock, and R. A. Sachleben, "Approaches to the Remediation of Alkaline High-Level Waste Using Solvent Extraction," 219th National Meeting of the American Chemical Society, San Francisco, CA, Mar. 26-31, 2000 (Invited).
190. S. W. Key, C. Becker, K. S. Honeycutt, T. Kaplan, D. S. Davis, C. K. Chambliss, K. Kavallieratos, and B. A. Moyer, “Toward Attenuation of Hofmeister Selectivity Using Simple Hydrogen Bonding Anion Hosts,“ 219th National Meeting of the American Chemical Society, San Francisco, CA, Mar. 26-31, 2000.
191. T. A. Todd, J. D. Law, R. S. Herbst, G. J. Lumetta, and B. A. Moyer, "Treatment of Radioactive Wastes Using Liquid-Liquid Extraction Technologies - Fears, Facts, and Issues," Waste Management 00, Tucson, AZ Mar., 2000.
192. B. A. Moyer, P. V. Bonnesen, C. K. Chambliss, T. J. Haverlock, A. P. Marchand, H-S Chong, A. S. McKim, K. Krishnudu, K. S. Ravikumar, V. S. Kumar, M. Takhi, and H. K. Hariprakasha, “Strategies Toward Reduction of High-Level Waste Volume: Use of Fluorinated Alcohols and Cage-Functionalized Macrocycles in the Extraction of NaOH,” Second Environmental Management Science Program National Workshop, Atlanta, GA, Apr. 25-27, 2000 (Invited).
193. B. A. Moyer, R. A. Sachleben, J. C. Bryan, T. J. Haverlock, M. L. Dietz, R. Chiarizia, B. P. Hay, J. B. Nicholas, D. A. Dixon, and S. D. Alexandratos "Design and Synthesis of the Next Generation of Crown Ethers for Waste Separations," Second Environmental Management Science Program National Workshop, Atlanta, GA, Apr. 25-27, 2000 (Invited).
194. T. J. Haverlock, S. Mirzadeh, P. V. Bonnesen, R. A. Sachleben, H. Ji, R. Dabestani, G. M. Brown, B. P. Hay, J. C. Bryan, and B. A. Moyer, “Fundamental Studies and Applications of Calix[4]arene-Crown-6 Compounds,” DOE-BES Workshop, Argonne National Laboratory, Nov. 20-21, 2000 (Invited).
195. P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, R. A. Sachleben, and B. A. Moyer, “From the Laboratory to the Tank Farm: Fundamental and Applied Issues in the Use of Calixarene-Crown Ethers in the Cleanup of U.S. DOE Nuclear Wastes,” Symposium on Supramolecular Chemistry in Biology, Medicine, and the Environment, 52nd Southeast-56th Southwest Combined ACS Regional Meeting, New Orleans, LA, Dec. 8, 2000.
196. B. A. Moyer, P. V. Bonnesen, G. M. Brown, B. Gu, W. D. Porter, S. D. Alexandratos, and M. A. Klingshirn, “Novel Bifunctional Quaternary Ammonium Resin for Highly Selective Separations of Oxyanions,” Symposium “Metal Complexation in Colloid and Polymer Systems,” Pacifichem 2000, Honolulu, HI, Dec. 14-19, 2000 (Invited).
197. B. A. Moyer, P. V. Bonnesen, C. K. Chambliss, G. M. Brown, and T. J. Haverlock, “Liquid-Liquid Separation of NaOH Using Fluorinated Alcohols and Phenols,” Symposium “Separations Science: Trends for the New Century,” Pacifichem 2000, Honolulu, HI, Dec. 14-19, 2000 (Invited).
198. B. A. Moyer, P. V. Bonnesen, L. H. Delmau, T. J. Haverlock, M. P. Maskarinec, and F. V. Sloop, Jr., “Caustic-Side Solvent Extraction Solvent Chemical and Thermal Stability,” USDOE Savannah River Site Salt Processing Program Vendor Forum, Augusta, GA, Jan. 30, 2001.
199. B. A. Moyer, P. V. Bonnesen, G. M. Brown, J. E. Caton, Jr., L. H. Delmau, T. J. Haverlock, T. G. Levitskaia, M. P. Maskarinec, and F. V. Sloop, Jr., “Caustic-Side Solvent Extraction Solvent Physical and Chemical Properties,” USDOE Savannah River Site Salt Processing Program Vendor Forum, Augusta, GA, Jan. 30, 2001.
200. P. V. Bonnesen, L. H. Delmau, N. L. Engle, T. J. Haverlock, T. G. Levitskaia, B. A. Moyer, “Application of Fluorinated Alcohols in Metal Ion Solvent Extraction Processes for Nuclear Waste Disposal and Environmental Remediation,” 221st Meeting of the ACS, San Diego, CA, Apr. 1-5, 2001.
201. K. Kavallieratos, J. C. Bryan, G. J. Van Berkel, and B. A. Moyer, “Highly Efficient Cesium Salt Extraction With Attenuation Of Bias Toward Large Anions By Use Of A Versatile Dual-Host Combination,” 221st Meeting of the ACS, San Diego, CA, Apr. 1-5, 2001.
202. L. H. Delmau, P. V. Bonnesen, T. J. Haverlock, T. G. Levitskaia, F. V. Sloop, Jr., R. A. Leonard, and B. A. Moyer, “Caustic-Side Solvent-Extraction: Efficient Process for Selective Extraction of Cesium from Savannah River Site High-Level Waste,” 221st Meeting of the ACS, San Diego, CA, Apr. 1-5, 2001.
203. P. V. Bonnesen, J. C. Bryan, L. H. Delmau, C. R. Duchemin, N. L. Engle, T. J. Haverlock, T. G. Levitskaia, and B. A. Moyer, “Ion Pair Extraction Using Calixarene-crown Ethers and Alcohol Solvating Agents: Past, Present, and Future,” DOE Workshop for Separations and Analysis, San Diego, CA, Apr. 5-7, 2001.
204. L. H. Delmau, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, T. J. Lefranc, G. J. Van Berkel, S. Mirzadeh, and B. A. Moyer, “Extraction of Alkali Metals by a Calix[4]arene Biscrown-6 Ether: When Modifiers Meet Modeling…,” DOE Workshop for Separations and Analysis, San Diego, CA, Apr. 5-7, 2001.
205. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, K. Kavallieratos, and T. G. Levitskaia, “Anion Selectivity in Ion-Pair Extraction of Alkali Metal Salts Using Cation and Anion Receptors,” DOE Workshop for Separations and Analysis, San Diego, CA, Apr. 5-7, 2001.
206. L. H. Delmau, P. V. Bonnesen, T. J. Haverlock, T. G. Levitskaia, F. V. Sloop, and B. A. Moyer, “Understanding the Extraction of Cesium from Savannah River Site High-Level Waste: Modeling of the Caustic-Side Solvent-Extraction,” 25th Actinide Separation Conference, Boise, ID, May 15-18, 2001.
207. L. N. Klatt, B. A. Moyer, L. H. Delmau, P. V. Bonnesen, J. F. Birdwell, Jr., and R. D. Spence, "Caustic-Side Solvent Extraction: A Summary of Data on Solvent Stability, Impurity Effects, and Solvent Commercialization," 25th Actinide Separations Conference, Boise, ID, May 2001.
208. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, K. Kavallieratos, T. G. Levitskaia, R. A. Sachleben, and F. V. Sloop, Jr., "Fundamental Challenges in Taking Calix-crowns from Host-Guest Principles Through Full-Scale Plant Design for Decontaminating Nuclear Waste," Gordon Research Conference on Inorganic Chemistry, Newport, RI, July 15-20, 2001 (Invited).
209. G. M. Brown, P. V. Bonnesen, B. Gu, B. A. Moyer, W. D. Porter, S. D. Alexandratos, and M. A. Klingshirn, “Novel Bifuncational Anion Exchange Resins for the Highly Selective Sorption of Perchlorate and Pertechnetate,” Fundamentals and Applications of Anion Separations, ACS National Meeting, Chicago, IL, Aug. 26-30, 2001.
210. K. Kavallieratos, J. C. Bryan, R. A. Sachleben, G. J. Van Berkel, M. A. Kelly, K. Bowman-James, and B. A. Moyer, “Dual-Host Combinations: From Enhancing Cesium Nitrate Extraction to Attenuating the Hofmeister Bias,” Fundamentals and Applications of Anion Separations, ACS National Meeting, Chicago, IL, Aug. 26-30, 2001.
211. T. G. Levitskaia, B. A. Moyer, P. V. Bonnesen, A. P. Marchand, K. Krishnudu, Z. Chen, Z. Huang, H. G. Kruger, and A. S. McKim, “Novel Approach to NaOH Separation: Synergistic Pseudo-Hydroxide Extraction by a Fluorinated Alcohol and Cage-Functionalized Crown Ethers,” ACS National Meeting, Chicago, IL, Aug. 26-30, 2001.
212. A. P. Marchand, T. D. Power, B. A. Moyer, T. G. Levitskaia, P. V. Bonnesen, and J. C. Bryan, “Ion-Pair Extraction by Using Cage-Functionalized Hosts: Strategy for Selective Extraction of NaOH from Wastes,” ACS National Meeting, Chicago, IL, Aug. 26-30, 2001.
213. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, T. J. Haverlock, K. Kavallieratos, T. G. Levitskaia, R. A. Sachleben, and T. Vercouter, “The Hofmeister Order and the Concept of Bias in Anion Separations,” Fundamentals and Applications of Anion Separations, ACS National Meeting, Chicago, IL, Aug. 26-30, 2001.
214. B. A. Moyer, P. V. Bonnesen,, G. M. Brown, J. C. Bryan, L. H. Delmau, T. J. Haverlock, T. G. Levitskaia, and F. J. Sloop, “Liquid-Liquid Extraction Approaches to the Treatment of Alkaline High-Level Waste,” ACS National Meeting, Chicago, IL, Aug. 26-30, 2001 (Invited keynote lecture).
215. T. G. Levitskaia, P. V. Bonnesen, S. D. Alexandratos, C. L. Stine, and B. A. Moyer, “Anion-Exchange of Surfactants from Organic Media: An Alternative Method for Solvent Cleanup in the Caustic-Side Solvent-Extraction Process,” 25th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 15-18, 2001.
216. L. H. Delmau, P. V. Bonnesen, T. J. Haverlock, T. G. Levitskaia, F. V. Sloop, R. A. Leonard, and B. A. Moyer, “Technical Aspects of the Caustic-Side Solvent Extraction (CSSX) Process for Selective Extraction of Cesium from Savannah River Site High Level Waste,” 25th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 15-18, 2001.
217. T. G. Levitskaia, V. S. Talanov, R. A. Bartsch, and B. A. Moyer, “New Strategy for Selective Cesium Solvent Extraction: Combination of Ion Recognition and Ion Exchange in a Single Calix[4]arene-Biscrown-6 Host,” Twelfth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 15-18, 2001.
218. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, T. G. Levitskaia, R. A. Sachleben, and F. V. Sloop, Jr., “The CSSX Process for Cesium Separation from HLW: Resurrection in the Valley of Death,” EMSP High-Level Waste Workshop, Richland Washington, Nov. 7-9, 2001 (Invited).
219. B. A. Moyer, P. V. Bonnesen, A. P. Marchand, and G. J. Lumetta, “Ion Recognition Approach to Volume Reduction of Alkaline Tank Waste by Separation of Sodium Salts,” EMSP High-Level Waste Workshop, Richland Washington, Nov. 7-9, 2001.
220. R. D. Spence, L. N. Klatt, and B. A. Moyer, “Radiolytic Stability of the Caustic Side Solvent Extraction (CSSX) Solvent Used to Extract 137Cs,” TIE Workshop, Albuquerque, NM, Nov. 13-15, 2001.
221. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, Nancy L. Engle, T. J. Haverlock, T. G. Levitskaia, R. A. Sachleben, and F. V. Sloop, Jr., “Ion-Recognition Approaches to the Treatment of Alkaline High-Level Waste by Liquid-Liquid Extraction,” Dept. of Chemistry Seminar, Univ. of California, Berkeley, CA, Feb. 1, 2002 (Invited).
222. B. A. Moyer, P. V. Bonnesen, C. K. Chambliss, T. J. Haverlock, and T. G. Levitskaia, “Separation of NaOH from Salts by Weak Hydroxy Acids,” Internat. Solvent Extr. Conf. ISEC ’02, Cape Town, South Africa, Mar. 18-21, 2002.
223. B. A Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, K. Kavallieratos, and T. G. Levitskaia, “Toward Recognition of the Anion in the Extraction of Alkali Metal Salts by Crown Ethers and Calixarenes,” Internat. Solvent Extr. Conf. ISEC ’02, Cape Town, South Africa, Mar. 18-21, 2002.
224. B. A Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, K. Kavallieratos, and T. G. Levitskaia, “Toward Recognition of the Anion in the Extraction of Alkali Metal Salts by Crown Ethers and Calixarenes” University of Port Elizabeth, Port Elizabeth, South Africa, Mar. 26, 2002.
225. B. A. Moyer and G. J. Lumetta, “Solvent Extraction Technologies for Mission Acceleration Initiative: NaOH Removal & Tc, Tc Removal,” Mission Acceleration Initiative Technology Demonstration Workshop, Pacific Northwest National Laboratory, Richland, WA, Apr. 2-3, 2002 (Invited).
226. T. G. Levitskaia, L. J. Foote, B. A. Moyer, V. N. Pastushok, J. L. Sessler, and T. V. Vercouter, “Synergism and Selectivity in Cesium Ion-Pair Extraction Systems Introduced by Simultaneous Utilization of Cation and Anion Hosts,” 223rd American Chemical Society National Meeting, Orlando, FL, Apr. 7-11, 2002.
227. L. H. Delmau, P. V. Bonnesen, L. J. Foote, T. J. Haverlock, H. Jennings, T. G. Levitskaia, and B. A. Moyer, “Caustic-Side Solvent-Extraction: Efficient Process for Selective Extraction of Cesium from Savannah River Site High Level Waste,” 223rd American Chemical Society National Meeting, Orlando, FL, Apr. 7-11, 2002.
228. R. D. Spence, L. H. Delmau, B. A. Moyer, and L. N. Klatt, “Batch Cross-Flow Decontamination of the Caustic-Side Solvent Extraction (CSSX) Solvent and SRS Simulant,” 223rd ACS National Meeting, Orlando, Florida, Apr. 7-11, 2002.
229. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, Nancy L. Engle, T. J. Haverlock, K. Kavallieratos, T. G. Levitskaia, R. A. Sachleben, and F. V. Sloop, Jr., “Fundamentals of Ion Recognition in Liquid-Liquid Systems and Their Applications to Nuclear-Waste Cleanup,” Dept. of Chemistry Seminar, Univ. of Illinois at Urbana-Champaign, Urbana, IL, May 2, 2002 (Invited).
230. T. J. Haverlock, S. Mirzadeh, and B. A. Moyer, “Selectivity In Separations Of Alkali Metal Cations Through Francium By Calix[4]Arene-Crown-6 Ethers,” 26TH Actinide Separations Conference, Berkeley, CA, June 3–6, 2002.
231. L. H. Delmau, P. V. Bonnesen, D. A. Bostick, T. J. Haverlock, H. Jennings, T. G. Levitskaia, and B. A. Moyer, “Selective Extraction of Cesium from Savannah River Site High-Level Waste: Optimization of the Caustic-Side Solvent Extraction Process,” 26TH Actinide Separations Conference, Berkeley, CA, June 3–6, 2002.
232. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, T. G. Levitskaia, R. A. Sachleben, and F. V. Sloop, Jr., “Industrial-Scale Macrocyclic Chemistry: CSSX Process for Cesium Removal from Nuclear Waste Using a Calixcrown,” XXVII International Symposium on Macrocyclic Chemistry, Park City, UT, June 23-27, 2002 (Invited).
233. P. V. Bonnesen, N. L. Engle, T. J. Haverlock, M. P. Maskarinec, B. A. Moyer, “Recent Progress Towards Synthesizing Calix[4]arene Crown Ethers with Improved Alkane Solubility for Waste Treatment Applications,” XXVII International Symposium on Macrocyclic Chemistry, Park City, UT, June 23-27, 2002.
234. T. G. Levitskaia, T. Vercouter, B. A. Moyer, J. A. Shriver, M. Marquez, and J. L. Sessler, and “Fluorinated Calixpyrroles Eliminate Anion Hofmeister Bias Selectivity,” XXVII International Symposium on Macrocyclic Chemistry, Park City, UT, June 23-27, 2002.
235. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, K. Kavallieratos, T. G. Levitskaia, and F. V. Sloop, Jr., "Recognition, Binding, and Separation of Ions by Novel Ion Receptors: From Principles to Applications," Chemical Sciences Division Seminar, Oak Ridge National Laboratory, July 23, 2002 (Invited).
236. P. V. Bonnesen, L. H. Delmau, T. J. Haverlock, T. G. Levitskaia, R. A. Sachleben, and B. A. Moyer, “Development of the Caustic-Side Solvent Extraction Process for Cesium Removal from Savannah River Waste,” Spectrum 2002, Reno, Nevada, August 4-8, 2002.
237. B. P. Hay, M. S. Gutowski,, D. A. Dixon, J. C. Bryan, and B. A. Moyer, "Structural Design Criteria for Oxyanion Receptors," 224th ACS National Meeting, Boston, MA, Aug. 18-22, 2002.
238. B. P. Hay, D. A. Dixon, M. Gutowski, B. A. Moyer, and J. C. Bryan. “Structural Design Criteria for Oxyanion Receptors,” Anion Symposium, Mid-West Regional American Chemical Society Meeting, Lawrence, Kansas, October 23-25, 2002 (Invited).
239. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, K. Kavallieratos, T. G. Levitskaia, and F. V. Sloop, Jr., "Strategies for Accommodating the Anion in the Extraction of Alkali Metal Salts and an Application in Nuclear Waste Cleanup," Royal Society of Chemistry Symposium "Co-ordination Chemistry in Action," Univ. of Edinburgh, Edinburgh, Scotland, United Kingdom, Nov. 6, 2002 (Invited).
240. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, K. Kavallieratos, T. G. Levitskaia, and F. V. Sloop, Jr., "Fundamental Principles and Applications of Host-Guest Chemistry in Liquid-Liquid Separation Systems," DECHEMA Symposium "Supramolecular Strategies for Selective Solvent Extraction Processes," Frankfurt am Main, Germany, Nov. 8, 2002 (Invited).
241. B. A. Moyer, P. V. Bonnesen, J. C. Bryan, L. H. Delmau, T. J. Haverlock, K. Kavallieratos, T. G. Levitskaia, and F. V. Sloop, Jr., "Fundamental Principles and Applications of Host-Guest Chemistry in Liquid-Liquid Separation Systems," Technical University of Dresden, Dresden, Germany, Nov. 11, 2002 (Invited).
242. Delmau, L. H.; Johnston, C. L.; Rumppe, J. L.; Pastushok, V. N.; Moyer, B. A. "Comparing the Performance Characteristics of Calix[4]jarene Azacrown-6 with Calix[4]arene Oxacrown-6," Industrial and Engineering Division, 225th National Meeting of the American Chemical Society, New Orleans, LA, March 23–27, 2003.
243. Delmau, L. H.; Birdwell, J. F., Jr.; Bonnesen, P. V.; Bostick, D. A.; Haverlock, T. J.; Lee, D. D.; Levitskaia, T. G.; Moyer, B. A.; Sloop, F. V., Jr.; Tomkins, B. A. “Caustic-Side Solvent Extraction: Efficient Process for Selective Extraction of Cesium from Savannah River Site High-Level Waste," AIChE 2003 Spring National Meeting and Process Industries Exposition, New Orleans, LA, March 23–27, 2003.
244. Delmau, L. H.; Johnston, C. L.; Rumppe, J. L.; Pastushok, V. N.; Moyer, B. A. "Comparing the Performance Characteristics of Calix[4]arene Azacrown-6 with Calix[4]arene Oxacrown-6,” 2003 Department of Energy Separations and Heavy Element Chemistry Contractors Meeting, Santa Fe, NM, April 26-30, 2003.
245. Moyer, B. A.; Bonnesen, P. V.; Delmau, L. H.; Bryan, J. C.; Sachleben, R. A.; Haverlock, T. J.; Sloop, F. V., Jr.; Levitskaia, T. G.; Fowler, C. J.; Kavallieratos, K.; Vercouter, T.; Kelly, M. A.; Eagle, C. T.; Sessler, J. L.; Marquez, M.; Lamb, J. D.; Hay, B. P.; Mirzadeh, S.; Van Berkel, G. J.; Shriver, J. A.; Fox, K. L. “Principles of Chemical Recognition and Transport in Extractive Separations: Anion Recognition in Salt Extraction Using Ion Receptors,” 2003 Department of Energy Separations and Heavy Element Chemistry Contractors Meeting, Santa Fe, NM, April 26–30, 2003.
246. Bonnesen, P. V.; Sloop, F. V., Jr.; Haverlock, T. J.; Moyer, B. A. "Principles of Chemical Recognition and Transport in Extractive Separations: Synthesis of Dibenzo-14-Crown-4 Ethers Bearing Fluoroalcohol Lariats,” 2003 Department of Energy Separations and Heavy Element Chemistry Contractors Meeting, Santa Fe, NM, April 26-30, 2003.
247. Moyer, B. A.; Bonnesen, P. V.; Delmau, L. H.; Engle, N. L.; Haverlock, T. J.; Kang, H.-A.; Levitskaia, T. G.; Lumetta, G. J.; Marchand, A. P.; Maya, L. "Ion Recognition Approach to Volume Reduction of Alkaline Tank Waste by Separation of Sodium Salts," FY2003 Environmental Management Science Program Principal Investigator Workshop, Pacific Northwest National Laboratory, Richland, WA, May 6–7, 2003.
248. Delmau, L.; Raymond, K.;D. Hobbs; Bonnesen, P. V.; Haverlock, T. J.; Bostick, D. A.; Moyer, B. A.; Xu, J.; Gordon, A. “Combined Extraction of Cesium, Strontium, and Actinides for Alkaline Media: An extension of the Caustic-Side Solvent Extraction (CSSX) Process Technology (Project No. 81936)," FY2003 Environmental Management Science Program Principal Investigator Workshop, Pacific Northwest National Laboratory, Richland, WA, May 6–7, 2003.
249. Delmau, L. H., Haverlock, T. J.; Bostick, D. A.; Casnati, A.; Raymond, K. N.; Moyer, B. A. "Extraction of Strontium and Actinides from Caustic Media: Fundamental Studies Towards the Extension of the CSSX Process,” 27th Actinide Separations Conference, Chicago, IL, June 9-12, 2003.
250. Bonnesen, P. V.; Gorbunova, M. G.; Engle, N. L.; Bazelaire, E.; Tomkins, B. A.; Haverlock, T. J.; Delmau, L. H.; Moyer, B. A. "New Calix-Crown Extractants for Cesium Separation from High-Level Waste,” 7th International Conference on Calixarenes (Calix2003), University of British Columbia, Vancouver, BC, Canada, August 13-16, 2003.
251. Delmau, L. H.; Baes, C. F., Jr.; Bostick, D. A.; Haverlock, T. J.; Moyer, B. A. "Solvent Extraction System Modeling Using the Program SXFIT," 2003 International Symposium on Hydrometallurgy, Vancouver, Canada, August 24-27, 2003.
252. Bonnesen, P. V., Engle, N. L.; Gorbunova, M. G.; Haverlock, T. J.; Tomkins, B. A.; Bazelaire, E.; Delmau, L. H.; Moyer, B. A. "Next Generation Extractants for Cesium Separation from High-Level Waste: From Fundamental Concepts to Site Implementation,” American Chemical Society National Meeting, New York, NY, September 7-11, 2003.
253. Gorbunova, M. G., Bonnesen, P. V.; Engle, N. L.; Bazelaire, E.; Delmau, L. H.; Moyer, B. A. "New Amino-functionalized 1,3-alternate Calix[4]arene bis- and mono-(benzo-crown-6-ethers),” American Chemical Society National Meeting, New York, NY, September 7-11, 2003.
254. Moyer, B. A.; Bonnesen, P. V.; Delmau, L. H.; Keever, T. J.; Sloop, F. V., Jr. Binding, Transport, and Separation of Radionuclides (Research Accomplishments Applicable to Decontamination, Radionuclide Decontamination Science & Technology Workshop, Los Alamos, NM, Sept. 16–17, 2003.
255. Bowman-James, K.: Moyer, B. A.; Sessler, J. L. "Supramolecular Chemistry of Environmentally Relevant Anions," American Chemical Society National Meeting, New York, NY, September 7-11, 2003.
256. Gorbunova, M. G.; Engle, N. L.; Bazelaire, E.; Tomkins, B. A.; Haverlock, T. J.; Delmau, L. H.; Bonnesen, P. V.; Moyer, B. A. Synthesis of New Calixcrown Extractants for Cesium Separation from High-Level Waste. Thirteenth Symposium on Separation Science & Technology for Energy Applications, Gatlinburg, TN, October 27–30, 2003.
257. Kang, H-A; Engle, N. L.; Bonnesen, P. V.; Delmau, L. H.; Haverlock, T. J.; Moyer, B.A. An Equilibrium Model of Pseudo-Hydroxide Extraction in the Separation of Sodium Hydroxide from Aqueous Solutions Using Lipophilic Fluorinated Alcohols and Phenols. Thirteenth Symposium on Separation Science & Technology for Energy Applications, Gatlinburg, TN, October 27–30, 2003.
258. Delmau, L. H.; Bazelaire, E.; Bonnesen, P. V.; Gorbunova, M. G.; Moyer, B. A. Functionalization of Calix[4]arene-crown-6 with Amino Groups: Toward Improvement of Cesium Stripping. Thirteenth Symposium on Separation Science & Technology for Energy Applications, Gatlinburg, TN, October 27–30, 2003.
259. Levitskaia, T. G.; Lumetta, G. J.; Moyer, B. A. Ion Recognition Approach to Volume Reduction of Alkaline Tank Waste by Separation of Sodium Salts. Thirteenth Symposium on Separation Science & Technology for Energy Applications, Gatlinburg, TN, October 27–30, 2003.
260. Gorbunova, M. G.; Bonnesen, P. V.; Hay, B. P.; Haverlock, T. J.; Moyer, B. A. Urea and Thiourea Derivatives for Oxyanion Chelation. 227th American Chemical Society National Meeting, Anaheim, CA, March 28–April 1, 2004.
261. Hay, B. P.; Firman, T. K.; Dixon, D. A.; Moyer, B. A. De novo Structure-Based Design of Anion Receptors. 227th American Chemical Society National Meeting, Anaheim, CA, March 28–April 1, 2004.
262. Levitskaia, T. G.; Moyer, B. A.; Pastushok, V. N.; Sessler, J. L.; Vercouter. T. Exploration of the Role of Anions in Liquid-Liquid Separations: H-bonding and Electrostatic Interactions. 227th American Chemical Society National Meeting, Anaheim, CA, March 28–April 1, 2004.
263. Sessler, J. L.; Gale, P. A.; Král; Moyer, B. A.; Marquez, M.; Cho,W.-S.; Shriver, J.; Fowler, C. J.; Levitskaia, T. G.; Magda, D. J. Oligopyrrole-based Anion Binding Agents. 227th American Chemical Society National Meeting, Anaheim, CA, March 28–April 1, 2004.
264. Kang, H.-A.; Engle, N. L.; Bonnesen, P. V.; Delmau, L. H.; Haverlock, T. J.; Moyer, B. A. Solvent Extraction of Sodium Hydroxide Using Alkylphenols and Fluorinated Alcohols: Understanding the Extraction Mechanism by Equilibrium Modeling, 227th American Chemical Society National Meeting, Anaheim, CA, March 28–April 1, 2004.
265. Levitskaia, T. G.; Lumetta, G. J.; Moyer, B. A. Combined Utilization of Cation Exchanger and Neutral Receptor to Volume Reduction of Alkaline Tank Waste by Separation of Sodium Salts. 227th American Chemical Society National Meeting, Anaheim, CA, March 28–April 1, 2004.
266. Moyer, B. A.; Fowler, C. J.; Delmau, L. H.; Ruas, A.; Bostick, D. A.; Sessler, J. L.; Shriver, J. A.; Llinares, J. M.; Hossain, Md. A.; Bowman-James, K. Synergized Liquid-Liquid Anion Exchange: Use of Anion Receptors to Enhance the Extraction of Sulfate from a Nitrate Matrix by a Quaternary Ammonium Extractant. 227th American Chemical Society National Meeting, Anaheim, CA, March 28–April 1, 2004.
267. Sessler, J. L.; Cho, W.-S.; Gross, D. E.; Shriver, J. A.; Moyer, B. A.; Kang, H.-A.; Fowler, C. J.; Delmau, L. H.; Ruas, A.; Bostick, D. A.; Na, H.-K.; Lee, J.-S.; Lee, C.-H.; Marquez, M. Calixpyrrole Families: Synthesis, Characterization, and Anion Binding/Extraction Studies. 13th International Symposium on Supramolecular Chemistry, Notre Dame, Indiana, July 25–30, 2004 (Invited).
268. Moyer, B. A.; Kang, H.-A.; Fowler, C. J.; Levitskaia, T. G.; Delmau, L. H.; Ruas, A.; Bostick, D. A.; Haverlock, T. J.; Sessler, J. L.; Shriver, J. A.; Llinares, J. M.; Hossain, Md. A.; Bowman-James, K. Synergized Liquid-Liquid Anion Exchange: Use of Anion Receptors to Enhance the Extraction of Sulfate from a Nitrate Matrix by a Quaternary Ammonium Extractant. Chemistry Department Seminar, Univ. of Texas, Austin, Aug. 5, 2004 (Invited).
269. Moyer, B. A.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Haverlock, T. J.; Bostick, D. A.; Gorbunova, M.; Kang, H-A; Fowler, C. J.; Levitskaia, T. G.; Kavallieratos, K.; Ruas, A.; Hay, B. P.; Sessler, J. L.; Cho, W.-S.; Shriver, J. A.; Bowman-James, K.; Llinares, J. M.: Hossain, M. A. Using Coordination Chemistry to Selectively Separate Anions, From the Template Effect to Spontaneous Intermolecular Organization. A Celebration of Daryle Busch's first 50 years of Leadership, Teaching, Research and Service, 228th ACS National Meeting, Philadelphia, PA, Aug. 22–16, 2004 (Invited).
270. Moyer, B. A.; Bonnesen, P. V.; Delmau, L. H.; Engle, N. L.; Haverlock, T. J.; Kang, H.-A.; Levitskaia, T. G.; Lumetta, G. J. Ion Recognition Approach to Volume Reduction of Alkaline Tank Waste by Separation of Sodium Salts. Environmental Management Science Program High-Level Waste Workshop, Savannah River National Laboratory, Jan. 19–20, 2005.
271. Delmau, L. H.; Engle, N. L.; Moyer, B. A.; Bonnesen, P. V.; Zhou, H.; Wegiel, M. A.; Bartsch, R. A. Extraction of Cesium by Calix[4]arenes Functionalized with Proton-Ionizable Groups. 229th Annual ACS National Meeting, San Diego, CA, March 13–17, 2005.
272. Bryantsev, V.; Hay, B. P.; Moyer, B. A. De novo design of urea-based receptors for anions. 229th Annual ACS National Meeting, San Diego, CA, March 13–17, 2005.
273. Moyer, B. A.; Custelcean, R..; Wintergerst, M. P.; Delmau, L. H.; Levitskaia, T. G.; Sessler, J. L.; Gale, P. A. “Principles of Chemical Recognition and Transport in Extractive Separations: Calix[4]pyrrole as Ion-Pair Receptors,” BES Contractor’s Separations and Heavy Element Chemistry, Rockville, Maryland, April 27–28, 2005 (Poster).
274. Moyer, B. A.; Kang, H.–A.; Gorbunova, M., Bonnesen, P. V.; Delmau, L. H.; Engle, N. L.; Keever, T. J.; Custelcean, R.; Hay, B. P.; Bowman-James, K.; Sessler, J. L.; Anslyn, E.; Gale, P. A. “Principles of Chemical Recognition and Transport in Extractive Separations: Selectivity in Liquid-Liquid Extraction of Anions,” BES Contractor’s Separations and Heavy Element Chemistry, Rockville, Maryland, April 27–28, 2005 (Abstract).
275. Custelcean, R.; Gorbunova, M. G.; Bonnesen, P. V.; Moyer, B. A.; Hay, B. P. “Principles of Chemical Recognition and Transport in Extractive Separations: Metal-Organic Frameworks as Solid-Phase Anion Exchangers,” BES Contractor’s Separations and Heavy Element Chemistry, Rockville, Maryland, April 27–28, 2005.
276. Hay, B. P.; Bryantsev, V. S.; Moyer, B. A.; Bonnesen, P. V.; Delmau, L. H.; Custelcean, R. “Principles of Chemical Recognition and Transport in Extractive Separations: Molecular Modeling and Host Design," BES Contractor’s Separations and Heavy Element Chemistry, Rockville, Maryland, April 27–28, 2005.
277. Delmau, L. H.; Bonnesen, P. V.; Engle, N. L.; Moyer, B. A.; Zhou, H.; Wegiel, M. A.; and Bartsch, R. A. “Cesium Extraction by Calix[4]arenes Functionalized with Proton-Ionizable Groups. Study of Selectivity Over Other Alkali Cations,” 29th Actinide Separations Conference, Nashville, TN, May 9–12, 2005.
278. Custelcean, R.; Gorbunova, M. G.; Bonnesen, P. V.; Hay, B. P.; Moyer, B. A. Towards Anion Recognition and Separation in Metal-Organic Frameworks: Crystal Engineering. American Crystallographic Association National Meeting, Orlando, FL, May 28–June 2, 2005 (Invited).
279. Delmau, L. H.; Wintergerst, M. P.; Levitskaia, T. G.; Sessler, J. L.; and Moyer, B. A. Calix[4]pyrrole as a new ion-pair receptor: Thermodynamic study of cesium halide extraction. Fourteenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2005.
280. Harmon, B.; Ensor, D.; Delmau, L. H.; and Moyer, B. A. pH-Dependent Extraction of Cesium by a Calix[4]arene-Crown-6 Ether Bearing a Pendant Amine Group. Fourteenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2005.
281. Moyer, B. A.; Bazelaire, E.; Bonnesen, P. V.; Delmau, L. H.; Ditto, M. E.; Engle, N. L.; Haverlock, T. J.; Levitskaia,T. G.; Bartsch, R. A.; Surowiec, M. A.; Zhou H. Advances in Cesium Extraction by Calix[4]arene-crown-6 Compounds. Fourteenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2005 (Invited).
282. Custelcean, R.; Gorbunova, M. G.; Bonnesen, P. V.; Moyer, B. A.; and Hay, B. P., “Anion Recognition in Metal-Organic Frameworks,” Pacifichem 2005, Honolulu, Hawaii, December 15–20, 2005.
283. Moyer, B. A.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Haverlock, T. J.; Hay, B. P.; Sessler, J. L.; Bowman-James, K. “Strategies for Employing Host-Guest Chemistry in Liquid-Liquid Separation of Ions,” Pacifichem 2005, Honolulu, Hawaii, December 15–20, 2005 (Invited).
284. Bryantsev, V. S.; Hay, B. P.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Moyer, B. A. "Computer-aided Molecular Design of Bis-urea Architectures for Anion Recognition," Pacifichem 2005, Honolulu, Hawaii, December 15–20, 2005.
285. Delmau, L. H.; Haverlock, T. J.; Bazaelaire, E.; Bonnesen, P. V.; Ditto, M. E.; Moyer, B. A. "Alternatives to Nitric Acid Stripping in the Caustic-Side Solvent Extraction (CSSX) Process," 231st American Chemical Society National Meeting, Atlanta, GA, Mar. 26–30, 2006.
286. Custelcean, R.; Gorbunova, M. G.; Moyer, B. A.; Hay, B. P. "Anion Coordination and Separations with Metal-Organic Frameworks," 231st American Chemical Society National Meeting, Atlanta, GA, Mar. 26–30, 2006.
287. Moyer, B. A. Fundamental Needs in Separations Chemistry: Building a Foundation for Advances in Nuclear Fuel-Cycle Separations. BES Workshop on Basic Needs for Advanced Nuclear Energy Systems, Bethesda, MD, Jul. 31–Aug. 3, 2006 (Invited).
288. Delmau, L. H.; Haverlock, T. J.; Bazelaire, E.; Bonnesen, P. V.; Ditto, M. E.; Moyer, B. A. “Improvements and alternatives to nitric acid stripping in the Caustic-Side Solvent Extraction (CSSX) process.” 58th SERMACS, Southeast Regional American Chemical Society Meeting, Augusta, GA, Nov. 1–4, 2006.
289. Delmau, L. H.; Wintergerst, M.; Sessler, J. L.; Moyer, B. A. “Calixarene Crown-6 and Calixpyrrole: A Fundamental Study of Cation and Anion Receptors Combination,” 233rd ACS National Meeting, Chicago, IL, March 25–29, 2007.
290. Delmau, L. H.; Bazelaire, E.; Bonnesen, P. V.; Engle, N. L.; Gorbunova, M.; Haverlock, T. J.; Moyer, B. A.; “Overview of Stripping Improvements for the Caustic Side Solvent Extraction (CSSX) Process,” 233rd ACS National Meeting, Chicago, IL, March 25–29, 2007.
291. Hay, B. P.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Moyer, B. A. Computer-aided design of anion receptors. On-site Review, Oak Ridge National Laboratory, Oak Ridge, TN, Apr. 2007.
292. Moyer, B. A.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Hay, B. P. “Principles of Chemical Recognition and Transport in Extractive Separations: Liquid-Liquid Separations of Anions,” Separations and Heavy Element Chemistry Contractors’ Meeting, Annapolis, MD, April 24–27, 2007. (Invited)
293. Custelcean, R.; Moyer, B. A.; Hay, B. P.; Bonnesen, P. V.; Delmau, L. H. “Principles of Chemical Recognition and Transport in Extractive Separations: Anion Coordination and Separation with Metal-Organic and Hydrogen-Bonded Frameworks,” Separations and Heavy Element Chemistry Contractors’ Meeting, Annapolis, MD, April 24–27, 2007.
294. Hay, B. P.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Moyer, B. A.; Johnson, D. W. “Principles of Chemical Recognition and Transport in Extractive Separations Molecular Modeling and Design of Anion Receptors.” Separations and Heavy Element Chemistry Contractors’ Meeting, Annapolis, MD, April 24–27, 2007.
295. Custelcean, R.; Sellin, V.; Moyer, B. A. “Coordination and Hydrogen-Bonded Frameworks for Anion Binding and Separation.” ACA National Meeting, Salt Lake City, UT, July 21–26 2007.
296. Moyer, B. A.; Haverlock, T. J.; Mirzadeh, S. “Does the Alkali Metal Selectivity of Calix[4]arene-crown-6 Type Cation Receptors Peak at Cesium?” Calix2007, College Park, MD, Aug. 6–9, 2007. (Invited)
297. Moyer, B. A.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Haverlock, T. J.; Hay, B. P.; Pham, C. G.; Powers, A. D.; Sessler, J. L.; Bowman-James, K. “Strategies for Employing Host-Guest Chemistry in Liquid-Liquid Separation of Anions,” 234th ACS National Meeting Symposium, Boston, MA, August 19–23, 2007.
298. Custelcean, R.; Sellin, V.; Hay, B. P.; Moyer, B. A.; “Anion Coordination and Separation with Metal Organic and Hydrogen-Bonded Frameworks,” 234th ACS National Meeting, Boston, MA, August 18-23, 2007.
299. Moyer, B. A.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Haverlock, T. J.; Hay, B. P.; S. Mirzadeh; Mirzadeh, K. S.; Sessler, J. L.; Bowman-James, K. “Challenges in Using Host-Guest Chemistry Concepts to Obtain High Selectivity in the Extraction of Inorganic Ions” 15th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, October 21–25, 2007. (Invited)
300. Custelcean, R.; Remy. P.; Sellin, V.; Bonnesen, P. V.; Moyer, B. A. “Anion Separation by Selective Crystallization of Metal-Organic Frameworks,” 15th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, October 21–25, 2007.
301. Ensor, D. D.; Meadors, V.; Partridge, J.; Delmau, L. H.; Moyer, B. A.; Bartsch, R. A.; Zhou, H., “Extraction of Cesium Using Calix[4]arene-benzocrown-6 Ethers Functionalized with Pendant Proton-Ionizable Groups,” 15th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, October 21–25, 2007.
302. Moyer, B. A.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Dinspel, A.; Eller, L. R.; Fowler, C. J.; Haverlock, T. J.; Hay, B. P.; Pham, C. G.; Powers, A. D.; Wintergerst, M.; Sessler, J. L.; Bowman-James, K. “The Selectivity Challenge in Anion Separations by Liquid-Liquid Extraction: Overcoming the Hofmeister Bias” 63nd Southwest Regional Meeting of the American Chemical Society, Lubbock, TX, Nov 4 – 7, 2007.
303. Moyer, B. A.; Custelcean, R.; Sessler, J. L.; Bowman-James, K. “Alleviating Sulfate-Related Problems in Vitrified Waste Forms via Removal of Sulfate from the Waste Prior to Vitrification,” Seminar on Accelerated Testing of Materials in Spent Nuclear Fuel and High Level Waste Storage Systems, ASTM International Subcommittee C26.13 Spent Fuel and High Level Waste, ASTM International Committee Week, Tampa, FL, Jan. 27–31, 2008.
304. Custelcean, R.; Remy, P.; Sellin, V.; Jiang, D.; Moyer, B. A. Metal-Organic Frameworks Functionalized with Urea Hydrogen-Bonding Groups for Selective Anion Separation. 235th American Chemical Society (ACS) National Meeting and Exposition 2008, New Orleans, LA, Apr. 6–10, 2008.
305. Moyer, B. A.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Hay, B. P.; Sessler, J. L.; Bowman-James, K. “Toward Achieving Selectivity in Anion Separations.” 3rd International Symposium on Macrocyclic and Supramolecular Chemistry (ISMSC), Las Vegas July 13–18, 2008.
306. Bartsch, R. A.; Zhou, H.; Delmau, L. H.; Moyer, B. A. Next Generation Extractants for Separation of Cesium from High-Level Waste. ISEC 2008 International Solvent Extraction Conference, Tucson, AZ, Sept. 15–19, 2008 (Keynote address).
307. Delmau, L. H.; Bazelaire, E.; Bonnesen, P. V.; Engle, N. L.; Gorbunova, M. G.; Haverlock, T. J.; Moyer, B. A.; Ensor, D. D.; Meadors, V. M.; Harmon, B. W.; Bartsch, R. A.; Surowiec, M. A.; Zhou, H. Dramatic Improvements in Caustic-Side Solvent Extraction of Cesium Through More Efficient Stripping. ISEC 2008 International Solvent Extraction Conference, Tucson, AZ, Sept. 15–19, 2008.
308. Delmau, L. H.; Birdwell, Jr., J. F.; McFarlane, J.; Moyer, B. A. Applicability of the Caustic-Side Solvent Extraction (CSSX) Process for the Removal of Cesium from Hanford Tank Waste. 60th ACS Southeastern Regional Meeting - SERMACS 2008, Nashville, TN, Nov. 12–15, 2008.
309. Delmau, L. H.; Dinspel, A. A.; Hay, B. P.; Bonnesen, P. V.; Moyer, B. A. Bisthioureas as Anion Receptors for Selective Separations. 60th ACS Southeastern Regional Meeting - SERMACS 2008, Nashville, TN, Nov. 12–15, 2008.
310. Woodward, J.D.; Moyer, B.A.; Delmau, L.H.; Bonnesen, P.V.; Rondinone, A.; Sloop, Jr., F.V.; Custelcean, R. Nanoparticle-Based Extractive Materials for Chemical Separations. Southeast Regional ACS Meeting, Nashville, TN, November 12–15, 2008.
311. Bredt, P.; Felmy, A. R.; Gauglitz, P. A.; Hobbs, D.; Krahn, S.; Machara, N.; McIlwain, M.; Moyer, B. A.; Poloski, A. P.; Subramanian, K.; Vienna, J. D., Wilmarth, B. “Science Opportunities to Reduce Risk in Nuclear Process Science.” Waste Management 2009 (WM 2009), Phoenix, AZ, Mar. 1–5, 2009.
312. Moyer, B. A. Sigma Team AFCI Separations. USDOE Office of Nuclear Energy AFCI Separations and Waste Forms Working Group Meeting, Richland, WA, Apr. 1, 2009.
313. Custelcean, R.; Bosano, J.; Remi; P.; Bock, A.; Moyer, B. A.; Hay, B. P., Bonnesen, P. V.; Delmau, L. H. Anion Recognition and Separation with Self-Assembled Cage Receptors. *DOE Contractors’ Meeting*, April 21-24, **2009**, Warrenton, Virginia, poster presentation.
314. Delmau, L. H.; Custelcean, R.; Moyer, B. A.; Hay, B. P.; Bonnesen, P. V.; Sessler, J. L. Calixarene crown-6 and Calixpyrrole: A Cation and Anion Receptors Combination. 2009 Separation Science−Heavy Element Chemistry Contractors's Meeting, Warrenton, VA, Apr. 21–24, 2009.
315. Hay, B. P.; Bonnesen, P. V.; Custelcean, R.; Delmau, L. H.; Moyer, B. A. Principles of Chemical Recognition and Transport in Extractive Separations Molecular Modelling and Design of Anion Receptors. 2009 Separation Science−Heavy Element Chemistry Contractors's Meeting, Warrenton VA, Apr. 21–24, 2009.
316. Delmau, L. H.; Partridge, J. D.; McFarlane, J.; Sloop, F. V., Jr.; Bonnesen, P.V.; Moyer, B. A.; Peterman, D. R.; Law, J. D.; Todd, T. A. Toward Formulating an Improved Solvent for the Fission Product Extraction (FPEX) Process: Focus on Modifier Selection. 238th ACS National Meeting & Exposition, Washington, DC, August 16-20, 2009.
317. Custelcean, R.; Bock, A.; Remy, P.; Bosano, J. J.; Bonnesen, P. V.; Hay, B. P.; Moyer, B. A. Sulfate Separation by Selective Crystallization of Hydrogen-Bonding Capsules. 16th Symposium on Separation Science and Technology for Energy Applications (2009), Gatlinburg, TN, Oct. 18–22, 2009.
318. Delmau, L. H.; Masselin, C.; Kim, S. K.; Sessler, J. L.; Moyer, B. A. Crown-6-Calix[4]arene Capped Calix[4]pyrrole: Simple dual host or ion-pair receptor? Thermodynamic study of cesium salt extraction. 16th Symposium on Separation Science and Technology for Energy Applications (2009), Gatlinburg, TN, Oct. 18–22, 2009.
319. Moyer, B. A.; Birdwell Jr., J. F.; Bonnesen, P. V.; Delmau, L. H.; McFarlane, J. Improvements to the CSSX Process Enable More Efficient Cesium Removal from Alkaline Nitrate Tank Wastes. 16th Symposium on Separation Science and Technology for Energy Applications (2009), Gatlinburg, TN, Oct. 18–22, 2009.
320. Custelcean, R.; Bock, A.; Bosano, J.; Remy, P.; Bonnesen, P. V.; Hay, B. P.; Moyer, B. A. Anion Recognition and Separation with Self-Assembled Cage Receptors, Midwest ACS Meeting, October 21–24*,* 2009, Iowa City, IA. (Invited presentation)
321. Moyer, B. A. Sigma Team for Minor Actinide Separations. USDOE Office of Nuclear Energy AFCI Separations and Waste Forms Working Group Meeting, Oak Ridge, TN, Nov. 3, 2009.
322. Custelcean, R.; Bock, A.; Bosano, J. J.; Remy, P.; Bonnesen, P. V.; Hay, B. P.; Moyer, B. A. Self-Assembled Cage Receptors for Anion Recognition and Separation. Spring 2010 American Chemical Society (ACS) National Meeting & Exposition, San Francisco, CA, Mar. 21–25, 2010.
323. Moyer, B. A. Sigma Team for Minor Actinide Separations. USDOE Office of Nuclear Energy FCR&D Separations and Waste Forms Working Group Meeting, Washington DC, Aug. 30–Sept. 1, 2010.
324. Moyer, B. A. Chemistry Fundamentals for Efficient Cesium Removal from Alkaline Waste. Tsinghua University, Beijing, P. R. China, Oct. 18, 2010.
325. Herczeg, J. W. (presented by B. A. Moyer). Overview of U.S. Nuclear Energy R&D Programs. Tsinghua University, Beijing, P. R. China, Oct. 18, 2010.
326. Moyer, B. A.; Birdwell, J. F., Jr.; Delmau, L. H.; Schuh, D. L.; Stoner, E. L.; Williams, N. J.; Fink, S. D.; Peters, T. B.; Pierce, R. A.; Leonard, R. A.; Geeting, M. W. Next-Generation Cesium Solvent, EM Technical Exchange Meeting, Atlanta, GA, Nov. 16–18, 2010.
327. Stoner, E. L.; Ensor, D. D.; Moyer, B. A.; Delmau, L. H.; Williams N., Removal of Radioactive Cesium from High Level Waste Using Next Generation CSSX Solvent Extraction, Southeast/Southwest Regional Meeting of the American Chemical Society, New Orleans, LA, November 30–December 4, 2010.
328. Moyer, B. A.; Borman, C. J.; Sloop, F. V., Jr. Controlling the selectivity of liquid-liquid anion exchange by synergistic combination of neutral anion receptors with lipophilic quaternary ammonium salts. Pacifichem 2010, Honolulu, HI, December 15–20, 2010. (Invited)
329. Moyer, B. A.; Bonnesen, P. V.; Delmau, L. H.; Sloop, F. V., Jr.; Williams, N. J.; Birdwell, J. F., Jr.; Lee, D. L.; Leonard, R. A.; Fink, S. D.; Peters, T. B.; Geeting, M. W. Development of the Next-Generation Caustic-Side Solvent Extraction (NG-CSSX) Process for Cesium Removal from High-Level Tank Waste, Paper No. 11346, Waste Management 2011, Phoenix, AZ, Feb. 27–Mar. 3, 2011.
330. Moyer, B. A., Mechanism of Synergized Anion Exchange Using Neutral Anion Receptors, BES Separations and Heavy Elements Contractors' Meeting, Baltimore, MD, Apr. 26–29, 2011. (Invited)
331. Moyer, B. A. 2011 Council of Chemical Research Collaboration Award: Development and Implementation of High-Level Salt-Waste Processing Technology, Council of Chemical Research Annual Meeting, Dearborn, MI, May 1–3, 2011. (Invited award presentation)
332. Rajbanshi, A.; Moyer, B. A.; Custelcean, R., Alkali metal-coordination cages for selective sulfate binding and separation, American Crystallographic Association Meeting, New Orleans, May 28–June 2, 2011. (Poster presentation; winner, CrystEngComm Poster Prize.)
333. Delmau, L. H.; Bonnesen, P. V.; Borman, C. J.; Ladd, N. B.; Rajbanshi, A.; Sloop, F. V., Jr.; Williams, N. J.; Moyer, B. A.; Birdwell, J. F., Jr.; Shuh, D. L.; Leonard, R. A.; Ensor, D. D.; and Stoner, E. L. Next-Generation Caustic-Side Solvent Extraction (NG-CSSX) Process. International Solvent Extraction Conference ISEC 2011, Oct. 3–7, 2011, Santiago, Chile.
334. Moyer, B. A. Milestones and Future Directions in the Solvent Extraction of Cesium. International Solvent Extraction Conference ISEC 2011, Oct. 3–7, 2011, Santiago, Chile. (Plenary lecture)
335. Roach, B. D.; Williams, N. J.; Duncan, N. C.; Delmau, L. H.; Moyer, B. A.; Lee, D. L.; Birdwell, J. F., Jr. Thermal and Radiolytic Stability of the Next-Generation Caustic-Side Solvent Extraction (NG-CSSX) Solvent. International Solvent Extraction Conference ISEC 2011, Oct. 3–7, 2011, Santiago, Chile.
336. Moyer, B. A. “Separation of Minor Actinides: A Team Approach to the Back End of the Nuclear Fuel Cycle,” Department of Chemistry, University of North Carolina, Chapel Hill, NC, Oct. 21, 2011.
337. Custelcean, R.; Rajbanshi, A.; Bonnesen, P. V.; Hay, B. P.; Moyer, B. A. Self-Assembled Capsule Receptors for Sulfate Recognition and Separation. 17th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2011.
338. Rajbanshi, A.; Moyer, B. A.; Custelcean, R. Sulfate*-*Binding Cages for Separation Applications in Moderately to Highly Alkaline Solutions*.* 17th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2011.
339. Hill, T. G.; Morgan, M.; Shults, C.; Buckner, J.; Ensor, D. D.; Delmau, L. H.; Moyer,B. A. Fundamental Investigation of the Next Generation Caustic Side Solvent Extraction (NG-CSSX) Process. 17th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2011.
340. Delmau, L. H.; Birdwell, J. F., Jr.; Bonnesen, P. V.; Ladd, N. B.; Moyer, B. A.; Stoner, E. L.; Lee, D. L.; Sloop, F. V., Jr. Development of the Next-Generation Caustic-Side Solvent Extraction (NG-CSSX) Process. 17th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2011.
341. Duncan, N. C.; Rajbanshi, A.; Williams, N. J.; Roach, B. D.; Bonnesen, P. V.; Moyer, B. A. Synthesis and Evaluation of Guanidine Suppressors Used in the Next Generation Caustic Side Solvent Extraction (NG-CSSX) Process. 17th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2011.
342. Moyer, B. A.; Borman, C. J.; Bonnesen P. V. Cooperativity in Liquid-Liquid Anion Exchange by Lipophilic Quaternary Ammonium Salts in Combination with Neutral Anion Receptors. 17th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 23–27, 2011. (Invited)
343. Moyer, B. A. “Sigma Team for Minor Actinide Separations,” Fuel Cycle Research and Development Program Annual Meeting, Argonne National Laboratory, Argonne, IL, Nov. 8–10, 2011. (Invited)
344. Lee, D. L.; Birdwell Jr., J. F.; Bruffey, S. H.; Szczygiel, P. L.; Moyer, B. A.; Delmau, L. H.; Bonnesen, P. V.; Stoner, E. L.; Williams, N. J.; Duncan, N. C.; Roach, B. D.; Ladd, N. B. Development, Testing, and Evaluation of hte Next Generation Caustic Side Solvent Extraction (NG-CSSX) Process. Oak Ridge National Lab, NSED Advisoty Committee Meeting, Jan. 18, 2012.
345. Moyer, B. A., “Beyond Selectivity: Properties of a Robust Extraction Solvent,” Symposium entitled Fundamentals & Applications in Hydrometallurgy: From the Molecule to the Process, 243rd ACS National Meeting, San Diego, CA, March 25–29, 2012. (Invited)
346. Moyer, B. A., Your Work is Finished, Thank You: Should Research Cease as a Technology Matures? Symposium in Honor of Lawrence L. Tavlarides, Industrial and Engineering Chemistry Fellow, 243rd ACS National Meeting, San Diego, CA, March 25–29, 2012. (Invited)
347. Moyer, B. A. Separations of Aqueous Ionic Species: From Principles to Applications, Ames National Laboratory, Ames, IA, April 20, 2012.
348. Todd, T. A.; Moyer, B. A. “Novel Approaches to the Separation of Trivalent Actinides from Used Nuclear Fuel,” Nuclear Fuel Cycle Conference, Manchester, UK, April 23–25, 2012.
349. Hay, B. P.; Panagopoulos, A. M.; Nadas, J. I.; Moyer, B. A. Computer-aided molecular design and synthesis of actinide sequestering agents. 36th Annual Actinide Separations Conference, Chattanooga, TN, May 21–24, 2012.
350. Moyer, B. A.; Wanigasekara, E. P.; Delmau, L. H.; Sun, X.-G.; Luo, H.; Dai, S. A Complete Ionic-Liquid Based Separation Cycle for UO3 Dissolution, Electroreduction to UO2, and Ionic-Liquid Regeneration. 36th Annual Actinide Separations Conference, Chattanooga, TN, May 21–24, 2012.
351. Moyer, B. A.; Wanigasekara, E. P.; Delmau, L. H.; Sun, X.-G.; Luo, H.; Dai, S. A Complete Ionic-Liquid Based Separation Cycle for UO3 Dissolution, Electroreduction to UO2, and Ionic-Liquid RegenerationA Complete Ionic-Liquid Based Separation Cycle for UO3 Dissolution. Separations and Waste Forms Working Group Meeting, Germantown, MD, Aug. 14–16, 2012. (Invited)
352. Roach, B. D.; Williams, N. J.; Duncan, N. C.; Delmau, L. H.; Moyer, B. A.; Lee, D. L. S.; Birdwell, J. F., Jr. Radiolytic Stability of the Next-Generation Caustic-Side Solvent Extraction (NG-CSSX) Solvent, 244th ACS National Meeting, Philadelphia, PA, August 19–23, 2012.
353. Wanigasekara, E.; Sun, X.-G.; Meisner, R. A.; Meyer, H. M., III; Luo, H.; Delmau, L. H.; Dai, S.; Moyer, B. A. Ionic Liquid-Based AMethod for Uranium Oxide Dissolution and Electrochemical Conversion to UO2, 244th ACS National Meeting, Philadelphia, PA, August 19–23, 2012.
354. Moyer, B. A. Challenges for Extracting and Purifying Critical Materials, 244th ACS National Meeting, Philadelphia, PA, August 19–23, 2012. (Invited, Presidential Symposium)
355. Moyer, B. A. Host-Guest Chemistry of Anion (and Cation) Separations, Dept. of Chemistry and Biochemistry, Florida State University, Tallahassee, FL, Nov. 16, 2012. (Invited)
356. Moyer, B. A. Host-Guest Chemistry in Liquid-Liquid Separations, Dept. of Chemistry and Biochemistry, Brigham Young University, Provo, UT, Nov. 28, 2012. (Invited)
357. Moyer, B. A. Host-Guest Chemistry in Liquid-Liquid Separations, Dept. of Chemistry and Biochemistry, Utah State University, Logan, UT, Nov. 27, 2012.
358. Moyer, B. A. Changing the Game with New Materials for Advanced Separations. ORNL Physical Sciences Directorate Advisory Committee Meeting, Oak Ridge National Laboratory, Oak Ridge, TN Feb. 25–26, 2013. (Invited)
359. Moyer, B. A. Recycle of Minor Actinides from Used Nuclear Fuel. 247th American Chemical Society Spring National Meeting & Exposition, Dallas, TX, Mar. 16–20, 2014. (Invited)
360. Moyer, B. A. Sigma Team for Minor Actinide Separations. DOE-CEA Exchange Meeting, Marcoule, FR, Mar. 21, 2013. (Invited)
361. Moyer, B. A. Sigma Team for Minor Actinide Separations. Separations and Waste Forms Working Group Meeting, Albuquerque, NM, Apr. 2, 2013. (Invited)
362. Delmau, L. H.; Moine, J. M.; Mirzadeh, S.; Moyer, B. A. First experimentally-determined thermodynamic values of Francium. Heavy Element Chemistry Research Meeting, Gaithersburg, MD, April 21–24, 2013.
363. Moyer, B. A. Principles of Chemical Recognition and Transport in Extractive Separations, Mechanism of Synergized Anion Exchange Using Neutral Anion Receptors. Heavy Element Chemistry Research Meeting, Gaithersburg, MD, April 21–24, 2013. (Invited)
364. Moyer, B. A.; Bonnesen, P. V.; Delmau, L. H.; Sloop, F. V., Jr.; Williams, N. J.; Roach, B. D. Next-Generation Caustic-Side Solvent Extraction (NGS) Process Chemistry Status. Independent Technical Review. Savannah River Site, Aiken, SC, May 28–30. (Invited)
365. Moyer, B. A. Fundamental to Applied Research on Diversifying the Supply of Critical Materials for Clean Energy. Rare Earth Research Conference (RERC 2014), Reno, NV, Jun. 22–26, 2014. (Invited)
366. Delmau, L. H.; Mirzadeh, S.; Moyer, B. A.; Terricabras, A. J. Determination of Gibbs Energy of Partitioning for Francium into Polar Solvents. 2nd Annual ORNL Postdoc Research Symposium, Oak Ridge, TN, Jul. 10, 2014.
367. Moyer, B. A.; Herbst, R. S. Critical Materials Institute Focus Area #1: Diversifying Supply. Information Exchange Meeting, Cytec Industries, Stamford, CT, July 22–23, 2013.
368. Moyer, B. A. Strategies for Diversifying the Supply of Critical Materials for Clean Energy. 248th ACS National Meeting & Exposition: Chemistry and Global Stewardship, San Francisco, CA, Aug. 10–14, 2014.
369. Moyer, B. A.; Herbst, R. S. Critical Materials Institute Focus Area #1: Diversifying Supply. Critical Materials Institute Kick-Off Meeting, The Ames Laboratory, Ames, IA, Sep. 10–12, 2013.
370. Moyer, B. A., Americium and Curium Separations for Advanced Aqueous Fuel Cycle Options. Global 2013, Salt Lake City, UT, Sept. 29–Oct. 3, 2013.
371. Moyer, B. A. Approaches to Selective Chemical Separations Applicable to Food and Agriculture. National Science Foundation, MPSAC Subcommittee, via Webcast from Oak Ridge National Laboratory, Oak Ridge, TN, Oct. 15, 2013. (Invited)
372. Moyer, B. A. Applications of Separation Science and Technology to Cleaning up Legacy Nuclear Waste, Closing the Nuclear Fuel Cycle, and Increasing the Supply of Critical Materials. ORNL Materials and Chemistry Seminar Series, Oak Ridge National Laboratory, Oak Ridge, TN, Oct. 2013. (Invited)
373. Moyer, B. A. Minor Actinide Separations for Advanced Aqueous Nuclear Fuel Recycle. Florida International University, Miami, FL, Nov. 7-8, 2013. (Invited)
374. Moyer, B. A. Strategies for Selective Ion Binding and Extraction: Fundamentals to Applications. Florida International University, Miami, FL, Nov. 7-8, 2013. (Invited)
375. Moyer, B. A. Applications of Separation Science and Technology to Contemporary Problems: Closing the Nuclear Fuel Cycle, Increasing the Supply of Critical Materials, and Cleaning up Nuclear Waste. University of Edinburgh, Edinburgh, UK, Sep. 3, 2014.
376. Moyer, B. A. Strategies for Selective Liquid-Liquid Anion Exchange. 20th International Solvent Extraction Conference, Wurzburg, Germany, Sep. 7–11, 2014. (Plenary)
377. Moyer, B. A. Americium and Curium Separations. 20th International Solvent Extraction Conference, Wurzburg, Germany, Sep. 7–11, 2014.
378. Moyer, B. A. Use of Host-Guest Chemistry to Effect Selective Separations of Cations and Anions. BASF Seminar, Wyandotte, MI, Oct. 8, 2014. (Invited)
379. Moyer, B. A. Oak Ridge Research Aimed at Contemporary Problems: Closing the Nuclear Fuel Cycle, Increasing the Supply of Critical Materials, and Cleaning up Nuclear Waste. BASF Seminar, Wyandotte, MI, Oct. 9, 2014. (Invited)
380. Williams, N. J.; Dai, S.; Roach, B. D.; Moyer, B. A. Using the Next Generation Solvent (NGS) for Treatment of Hanford Tank Waste. 66th Southeastern Regional Meeting of the American Chemical Society (SERMAC), Nashville, TN, Oct. 16–19, 2014.
381. Custelcean, R.; Sloop Jr, F. V.; Rajbanshi, A.; Wan, S.; Moyer, B. A. Sodium Sulfate Separation from Aqueous Alkaline Solutions via Crystalline Urea-Functionalized Capsules: Thermodynamics and Kinetics of Crystallization. 18th Symposium on Separation Science and Technology for Energy Applications, Oak Ridge, TN, Oct. 27–30, 2014.
382. Hill, T. G.; Ensor, D.; Delmau, L. H.; Moyer, B. A. Thermal stability study of a new guanidine suppressor for the NG-CSSX solvent extraction process. 18th Symposium on Separation Science and Technology for Energy Applications, Oak Ridge, TN, Oct. 27–30, 2014.
383. Moyer, B. A. Challenges in Diversifying the Supply of Critical Materials for Clean Energy. 18th Symposium on Separation Science and Technology for Energy Applications, Oak Ridge, TN, Oct. 27–30, 2014. (Invited)
384. Moyer, B. A. Next Generation Solvent Extraction Process for Cesium Removal from Legacy Alkaline Tank Waste. 18th Symposium on Separation Science and Technology for Energy Applications, Oak Ridge, TN, Oct. 27–30, 2014. (Invited)
385. Roach, B. D.; Williams, N. J.; Moyer, B. A. Thermal Treatment of the Next-Generation Caustic-Side Solvent Extraction (NGS) Solvent and the Effects of Cesium Extraction, Scrubbing, and Stripping. 18th Symposium on Separation Science and Technology for Energy Applications, Oak Ridge, TN, Oct. 27–30, 2014.
386. Williams, N. J.; Roach, B. D.; Moyer, B. A.; Geeting, M. W. Can Next Generation Solvent Treat Hanford Tank Waste in a Modular Unit? 18th Symposium on Separation Science and Technology for Energy Applications, Oak Ridge, TN, Oct. 27–30, 2014.
387. Moyer, B. A. Separations Chemistry and its Application to Cleaning up Legacy Nuclear Waste, Closing the Nuclear Fuel Cycle, and Increasing the Supply of Critical Materials. Clemson University, Clemson, SC, Nov. 13, 2014. (Invited)
388. Moyer, B. A. Molecular Recognition of Cesium and Francium. Methods & Applications of Radioanalytical Chemistry (MARC X), Kailua-Kona, Hawaii, USA, April 12-17, 2015. (Invited)
389. Jansone-Popova, S.; Custelcean, R.; Jia, C.; Bonnesen, P. V.; Moyer, B. A. Self-Assembly of Ditopic Ligands with Metal Salts to Construct New Helicate and Cube Architectures. 2015 Heavy Element Chemistry and Separations PI Meeting, Gaithersburg, Maryland, USA, April 19-22, 2015.
390. Moyer, B. A. Diversifying the Supply of Critical Materials, An Application of Separation Science and Technology, 2015 Heavy Element Chemistry and Separations PI Meeting, Gaithersburg, Maryland, USA, April 19-22, 2015. (INVITED)
391. Jansone-Popova, S.; Bryantsev, V.; Sloop Jr., F. V.; Moyer, B. A. New Mixed-Donor Ligands for Selective An(III)/Ln(III) Separation from Acidic Media. 39th Actinide Separations Conference, Salt Lake City, Utah, USA, May 18 21, 2015.
392. Moyer, B. A. Sigma Team for Minor Actinide Separations. 39th Actinide Separations Conference, Salt Lake City, Utah, USA, May 18‑21, 2015. (INVITED)
393. Moyer, B. A.; Delmau, L. H.; Terricabras, A. J.; Mirzadeh, S. Francium Partitioning in Liquid-Liquid Systems: A New Technique to Reveal its Thermodynamic Properties for the First Time. 3rd Annual ORNL Postdoc Research Symposium, Oak Ridge, Tennessee, USA, July 30, 2015.
394. Terricabras, A.J.; Mirzadeh, S.; Moyer, B. A.; Delmau, L. H. Francium Partitioning in Liquid-Liquid Systems: A New Technique to Reveal its Thermodynamic Properties for the First Time. 3rd Annual ORNL Postdoc Research Symposium, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA, July 30, 2015.
395. Seipp, C. A.; Williams, N. J.; Bryantsev, V.; Custelcean, R.; Moyer, B. A. Conformationally Rigid Pseudo-Bicyclic Guanidinium-Based Oxoanion Receptors. 250th ACS National Meeting & Exposition, Boston, Massachusetts, USA, August 16-20, 2015.
396. Moyer, B. A. Separations Chemistry and its Application to Cleaning up Legacy Nuclear Waste, Closing the Nuclear Fuel Cycle, and Increasing the Supply of Critical Materials. Washington State University, Pullman, Washington, USA, August 31, 2015. (INVITED)
397. Todd, T. A.; Moyer, B. A.; Mincher, B. J.; Law, J.; Goff, G.; Sinkov, S.; Lumetta, G. J. Oxidation and Extraction of Americiium(VI) from Lanthanides. Nuclear Fuel Cycle for a Low-Carbon Future: Global 2015, Paris, France, September 20–24, 2015.
398. Moyer, B. A.; Bryantsev, V.; Custelcean, R.; Delmau, L. H.; Hay, B.; Panagopoulos, A. M.; Jansone-Popova, S. New Mixed-Donor Extractants for Minor-Actinide Separation. Global 2015 - Nuclear Fuel Cycle for a Low-Carbon Future, Paris, France, September 20–24, 2015.
399. Moyer, B. A.; Herbst, R. S. Diversifying the Supply of Critical Materials for Clean Energy: An Application of Separation Science and Technology. Japan Trilateral Conference, Sendai, Japan, October 28–29, 2015.
400. Moyer, B. A. Challenges in Diversifying the Supply of Critical Materials for Clean Energy. October CMI Webinar, October 28, 2015.
401. Moyer, B. A. Strategies for Diversifying the Supply of Critical Materials Through the Development of New Separation Technologies for Rare Earths. Pacifichem 2015, Honolulu, Hawaii, USA, December 15-20, 2015. (INVITED)
402. Seipp, C. A.; Williams, N. J.; Bryantsev, V.; Custelcean, R.; Moyer, B. A. Pseudo-Bicyclic Guanidinium-Based Scaffold for Binding Anions in a Symmetric Planar Conformation. Pacifichem 2015, Honolulu, Hawaii, USA, December 15-20, 2015.
403. Williams, N. J.; Reynolds, C. O.; Gill, L. W.; Custelcean, R.; Moyer, B. A. Can Anion Receptors Control Cation-Exchange Selectivity? Pacifichem 2015, Honolulu, Hawaii, USA, December 15-20, 2015.
404. Moyer, B. A. Diversifying the Supply of Critical Materials for Clean Energy. East Tennessee AIChE meeting, Knoxville, Tennessee, USA, January 21, 2016. (INVITED)
405. Brigham, D. M.; Delmau, L. H.; Moyer, B.A. Extraction and Separation of Neodymium and Praseodymium from Acidic Media. 1st Annual CMI Conference for Postdoctoral and Student Researchers, Golden, Colorado, USA, February 3, 2016.
406. Moyer, B. A.; Williams, N. J.; Bryantsev, V.; Custelcean, R. Use of Anion Receptors to Control Cation Selectivity in Liquid-Liquid Systems. ACS Spring 2016 National Meeting, San Diego, California, USA, March 13-17, 2016. (INVITED)
407. Burns, J. D.; Moyer, B. A. Hexavalent Actinide Co-Crystallization: New Approach to Group Actinide Separation. ACS Spring 2016 National Meeting, San Diego, California, USA, March 13-17, 2016.
408. Moyer, B. A.; Burns, J. D. Co-crystallization of hexavalent actinide nitrates: Group actinide separation of uranium through americium. ATALANTE 2016 – Nuclear Chemistry for Sustainable Fuel Cycles, Montpellier, France, June 5-10, 2016. (KEYNOTE)
409. Moyer, B. A. Developing the Caustic-Side Solvent Extraction Process for Cesium Removal from Legacy Tank Waste. 252nd American Chemical Society National Meeting, Philadelphia, Pennsylvania, August 21-25, 2016. (INVITED)
410. Bryantsev, V.; Ivanov, A.; Jansone-Popova, S.; Sloop Jr., F. V.; Custelcean, R.; Moyer, B.A. Predicting Ligand Selectivity for the Trivalent F-Block Metal Ions Using Density Functional Theory. 19th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 10-12, 2016.
411. Custelcean, R.; Moyer, B. A.; Williams, N. J.; Bryantsev, V.; Delmau, L. H.; Ivanov, A.; Brigham, D. M. Anion Separation by Selective Crystallization of Anion-Water Clusters with Self-Assembled Guanidinium Receptors. 19th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 10-12, 2016.
412. Seipp, C. A.; Williams, N. J.; Custelcean, R.; Bryantsev, V. S.; Moyer, B. A. Selective Separation of Sulfate Using Guanidinium‑Based Oxoanion Receptors. 19th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 10-12, 2016.
413. Moyer, B. A. Technology Gaps in Supplying Critical Materials for Clean Energy. 19th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 10-12, 2016. (INVITED PLENARY)
414. Moyer, B. A. Sigma Team for Advanced Actinide Recycle: Highlights and Directions. Fourteenth International Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation (14IEMPT), San Diego, California, October 17-20, 2016.
415. Bunsen, J. C.; Moyer, B.A.; Burns, J. D. A New Group Crystallization Approach in Used Nuclear Fuel Recycling: A Look at Fission Product Behaviors. ANS Winter Meeting, Las Vegas, Nevada, November 7-12, 2016.
416. Moyer, B. A. Progress in Separations of Minor Actinides for Used Nuclear Fuel Recycle. Deparatment of Chemistry. Texas A&M University, Texas, January 24, 2017.
417. Moyer, B. A. Progress in Separations of Minor Actinides for Used Nuclear Fuel Recycle. Department of Chemistry and Biochemistry, University of Texas, Austin, Austin, Texas, January 25, 2017.
418. Moyer, B. A. Progress in Separations of Minor Actinides for Used Nuclear Fuel Recycle. Department of Chemistry and Geochemistry, Colorado School of Mines, Golden, Colorado February 7, 2017. (INVITED)
419. Moyer, B. A.; Burns, J. D. Fuel Cycle Technologies Actinide Co-precipitation. MRWFD Working Group Meeting, Albuquerque, New Mexico, March 28-30, 2017.
420. Williams, N. J.; Seipp, C. A.; Garrabrant, K. A.; Ellis, R. J.; Custelcean, R.; Moyer, B. A. The Synthesis and Study of New Highly Soluble Tetraalkylated Bis(Imino)guanidiniums for the Selective Removal of Oxoanions from Aqueous Solutions Containing Mixtures of Anions. American Chemical Society 2017 Spring Meeting, San Francisco, California, April 2-6, 2017.
421. Seipp, C.A.; Williams, N. J.; Bryantsev, V. S.; Moyer, B. A.; Custelcean, R. Selective Recognition and Separation of Oxoanions Using a Guanidinium Ligand. American Chemical Society 2017 Spring Meeting, San Francisco, California, April 2-6, 2017.
422. Jansone-Popova, S.; Thevenet, A.; Custelcean, R.; Moyer, B. A. Self-Assembly Leads to Recognition of Divalent Metal Cation and Tetrahedral Divalent Oxoanion Using Ditopic Receptor. American Chemical Society 2017 Spring Meeting, San Francisco, California, April 2-6, 2017.
423. Shih, J.; Jansone-Popova, S.; Moyer, B. A.; Chisholm, M. F. Study of Novel Heterocycles for Metal Ion Separation. American Chemical Society 2017 Spring Meeting, San Francisco, California, April 2-6, 2017.
424. Moyer, B. A.; Bryantsev, V. S.; Custelcean, R.; Ellis, R. J.; Seipp, C. A.; Williams, N. J. Selective Liquid-Liquid Extraction with Novel Anion Receptors. 2017 Heavy Element Chemistry and Separations Principle Investigators’ Meeting, Gaithersburg, Maryland, April 23-26, 2017.
425. Jansone-Popova, S.; Moyer, B. A.; Custelcean, R. Remarkable Recognition of Copper Sulfate Through Self-Assembly of a Ditopic Receptor. 2017 Heavy Element Chemistry and Separations Principle Investigators’ Meeting, Gaithersburg, Maryland, April 23-26, 2017.
426. Burns, J. D.; Wilcox, A. J.; Moyer, B.A. Hexavalent Actinide Co-Crystallization: A Closer Look at the Behavior of the Fission Products. 41st Actinide Separations Conference, Lemonte, Illinois, May 21-27, 2017.
427. Bryantsev, V. S.; Ivanov, A. I.; Jansone-Popova, S.; Sloop Jr., F. V.; Goverapet Srinivasan, S.; Moyer, B. A. Using First-Principles Calculations to Facilitate the Design of Ligands for Actinide Separation. 41st Annual Actinide Separations Conference, Lemont, Illinois, May 23-25, 2017.
428. Wilcox, A. J.; Moyer, B.A.; Burns, J. D. Behavior of Sodium Bismuthate as an Oxidizing Agent for a Hexavalent Actinide Co-Crystallization Process. 41st Actinide Separations Conference, Lemonte, Illinois, May 23-25, 2017.
429. Jansone-Popova, S.; Bryantsev, V. S.; Sloop Jr., F. V.; Moyer, B. A. Design and Synthesis of New Mixed N,O-Donor Ligands for Selective An(III)/Ln(III) Separation. 41st Annual Actinide Separations Conference, Lemont, Illinois, May 23-25, 2017.
430. Brigham, D. M.; Moyer, B.A.; Delmau, L. H.; Bryantsev, V. S.; Ivanov, A.; Ellis, R. J. Outer-sphere Coordination of Counter-ions in Lanthanide(III) Complex with Diglycolamide Ligands. 28th Rare Earth Research Conference 2017, Ames, Iowa, June 18, 2017.
431. Wilcox, A. J.; Moyer, B. A.; Burns, J. D. A New Group Crystallization Approach in Used Nuclear Fuel Recycling: A Look at Fission Product Behaviors. Trans. Am. Nucl. Soc. **2017**, *116*, 121–122. 2017 American Nuclear Society Summer Meeting and Technology Expo, San Francisco, CA, June 11–15, 2017.
432. Moyer, B. A. Technology Needs and Progress in Diversifying the Supply of Critical Materials for Clean Energy. Goldschmidt 2017, Paris, France, August 13-18, 2017. (INVITED)
433. Bryantsev, V. S.; Ellis, R. J.; Ivanov, A. I.; Moyer, B. A. Structural Basis for Selective Liquid-liquid Extraction from EXAFS and Molecular Simulations. 254th National Meeting of the American Chemical Society (ACS), Washington, District of Columbia., August 20, 2017.
434. Moyer, B. A. Research Progress in Diversifying the Supply of Critical Materials for Clean Energy. EuroMat 2017, Thessaloniki, Greece, September 17-22, 2017. (INVITED)
435. Moyer, B. A. A Look at Where We Stand on Addressing Technology Needs for Diversifying the Supply of Critical Materials for Clean Energy. MS&T symposium Rare Earth Metals, Compounds, and Alloys Symposium, Pittsburg, Pennsylvania, October 8-12, 2017. (INVITED)
436. Moyer, B. A. The Eleven Ways to Use Host-Guest Chemistry for Ion Recognition in Liquid-Liquid Extraction. The 21st International Solvent Extraction Conference (ISEC 2017), Miyazaki City, Japan, November 5-9, 2017. (KEYNOTE)
437. Moyer, B.A. Calix[4]arene-crown-6 Molecules in the Extraction of Large Alkali Metals: Fundamentals to Scale-up for Removing Cesium from Millions of Gallons of Alkaline Nuclear Waste. International Symposium on Separation Science and Technology (Post-ISEC Meeting), Kitakyushu, Japan, November 10, 2017. (INVITED)
438. Bryantsev, V. S.; Ellis, R. J.; Ivanov, A. S.; Roy, S.; Delmau, L. H.; Moyer, B. A. The Role of Inner- and Outer-Sphere Interactions in the Selective Extraction of Metal Ions. 2018 BES Separations Science PI Meeting, Gaithersburg, Maryland, February 5-8, 2018.
439. Moyer, B. A. The Eleven Ways to Use Host-Guest Chemistry to Extract Aqueous Ions. 2018 BES Separations Science PI Meeting, Gaithersburg, Maryland, February 6-7, 2018.
440. Healy, M.; Jansone-Popova, S.; Bryantsev, V. S.; Moyer, B. A. New Ligands for the Selective Binding and Extraction of Light Lanthanides. 255th ACS National Meeting & Exposition, New Orleans, Louisiana, March 18-22, 2018.
441. Healy, M.; Jansone-Popova, S.; Bryantsev, V. S.; Lyon, K.; Moyer, B. A. New Extended DGA Ligands for the Selective Binding and Extraction of Light Lanthanides. 255th ACS National Meeting & Exposition, New Orleans, Louisiana, March 18-22, 2018.
442. Bryantsev, V. S.; Ivanov, A. S.; Roy, S.; Jansone-Popova, S.; Moyer, B. A.; Heathman, C.; Grimes, T.; Zalupski, P. The Role of Theoretical Calculations in Advancing Separation of f-Block Metal Ions. The 42nd Actinide Separations Conference, Charleston, South Carolina, May 21-24, 2018.
443. Moyer, B. A. The Legacy of STAAR, the Sigma Team for Advanced Actinide Recycle. The 42nd Actinide Separations Conference, Charleston, South Carolina, May 21-24, 2018.
444. Healy, M. R.; Bryantsev, V. S.; Jansone-Popova, S.; Moyer, B. A. Evaluation of Rigid Bislactam 1,10-Phenanthroline Extractants for the Separation of Lanthanides. The 42nd Actinide Separations Conference, Charleston, South Carolina, May 21-24, 2018.
445. Jansone-Popova, S.; Bryantsev, V. S.; Healy, M. R..; Popovs, I.; Moyer, B. A.; Zalupski, P.; Heathman, C.; Grimes, T. Design and Synthesis of New Mixed N,O-Donor Ligands for Selective An(III)/Ln(III) Separation. The 42nd Actinide Separations Conference, Charleston, South Carolina, May 21-24, 2018.
446. Jansone-Popova, S.; Bryantsev, V. S.; Healy, M. R..; Popovs, I.; Moyer, B. A.; Zalupski, P.; Heathman, C.; Grimes, T. Design and Synthesis of New Mixed N,O-Donor Ligands for Selective An(III)/Ln(III) Separation. (Poster) The 42nd Actinide Separations Conference, Charleston, South Carolina, May 21-24, 2018.
447. Moyer, B. A. Eleven Ways to Use Host-Guest Chemistry for Ion Recognition in Liquid-Liquid Extraction: Successes and Challenges. International Symposium on Macrocyclic and Supramolecular Chemistry (ISMSC 2018), Quebec City, Canada, July 8-13, 2018. (INVITED)
448. Moyer, B.A. Achieving Selective Separation of Rare Earths. International Conference on Coordination Chemistry, Sendai, Japan, July 30-August 4, 2018. (INVITED)
449. Jansone-Popova, S.; Isaichykava, Y.; Moyer, B. A. Highly Efficient Extraction of Ln(III) and An(III) by Novel Phenanthroline-based Ligand. ORPA’s 6th Annual Research Symposium, Oak Ridge, Tennessee, August 7, 2018.
450. Moyer, B.A.; Brigham, D. M.; Bryantsev, V. S.; Delmau, L. H.; Ellis, R. J.; Ivanov, A. S.; Jansone-Popova, S.; Herbst, R. S.; Lyon, K. L.; Greenhalgh, M. R. Separation of Rare Earths Using Diglycolamide Extractants. Extraction 2018, Ottawa, Canada, August 26-29, 2018. (INVITED)
451. Moyer, B.A.; Brigham, D. M.; DePaoli, D. W.; Sherman, S. R.; Zhang, P. Recovery of Rare Earths from Phosphoric Acid Production. Extraction 2018, Ottawa, Canada, August 26-29, 2018. (INVITED)
452. Healy, M. R.; Albisser, C.; Durain, J.; Stramberga, D.; Moyer, B. A.; Bryantsev, V. S.; Ivanov, A. S.; Popovs, I.; Jansone‑Popova, S. Ligand Design and Testing for Selective Extraction of Lanthanides (III) - Current Progress and New Directions. CMI Annual Meeting, Ames, Iowa, September 5-7, 2018.
453. Healy, M. R.; Albisser, C. A.; Durain, J.; Stamberga, D.; Ivanov, A. S.; Bryantsev, V. S.; Moyer, B. A.; Popovs, I.; Jansone‑Popova, S. Strategic Study on Lanthanide Separation Through Effective Ligand Design. 20th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 21–24, 2018.
454. Moyer, B. A. Ion Recognition in Solvent Extraction: Design or Discovery? 20th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 21–24, 2018. (KEYNOTE)
455. Moyer, B. A. Achieving Selective Recognition and Extraction of f-Elements. 70th Southeastern Regional Meeting of the American Chemical Society, Augusta, Georgia, October 31–November 3, 2018. (KEYNOTE)
456. Moyer, B. A. Separating Trivalent Lanthanides: Enabling Nuclear Fuel Cycle or Recovery of Valuable Critical Materials? University of Oklahoma, Nov. 6, 2019. (INVITED)
457. Healy, M. R.; Stamberga, D.; Albisser, C. A.; Moyer, B. A.; Popovs, I.; Lyon, K.; Jansone-Popova, S. Lanthanide Separation through Effective Ligand Design: A Study of Alkyl Group Influences in DGAs at the Metal Coordination Site and the Liquid-liquid Interface. CMI Winter Meeting, Golden, Colorado, February 4-5, 2019.
458. Healy, M. R.; Moyer, B. A.; Popovs, I. Lithium Separation from Alkali Metals through Liquid-liquid Extraction. CMI Winter Meeting, Golden, Colorado, February 4-5, 2019.
459. Momen, M. A.; Cheshire, M.; Tsouris, C.; Jansone-Popova, S.; DePaoli, D.; Moyer, B. A. Separation and Purification of Rare Earth Elements Using Diglycolamide Based Novel Extraction Chromatographic Material. ACS Fall Meeting 2019, San Diego, California, August 25-29, 2019.
460. Moyer, B. A.; Bryantsev, V. S.; Custelcean, R.; Jansone-Popova, S. Principles of Chemical Recognition and Transport in Extractive Separations: The Iminoguanidinium Group as Versatile Oxoanion Recognition Unit. 2019 Separations Science Research PI Meeting, Washington, DC, September 9–11, 2019.
461. Jansone-Popova, S.; Healy, M. R.; Karslyan, Y.; Stamberga, D.; Ivanonv, A. S.; Bryantsev, V. S.; Sloop Jr., F. V.; Popovs, I.; Delmau, L. H.; Moyer, B. A.; Paulenova, A. Actinide and Lanthanide Separation Facilitated by Preorganization of Multidentate Ligands. Separations Breakthroughs for Commodity and Specialty Chemicals, Environmental Science and Analytical Chemistry, Galveston, Texas, January 26-31, 2020.
462. Moyer, B. A.; Custelcean, R.; Jansone-Popova, S. Strategies for Oxoanion Separations. Separations Breakthroughs for Commodity and Specialty Chemicals, Environmental Science and Analytical Chemistry, Galveston, Texas, January 26-31, 2020.
463. Moyer, B. A. The Role of Research in Technology Maturation: Perspectives from a Researcher, Technology Developer, and Research Portfolio Manager. Critical Materials Institute Webinar, February 26, 2020.
464. Moyer, B. A.; Bryantsev, V. V. Advancing Science and Technology to Reduce the Supply Risk of Critical Materials. ACS Committee on Science symposium “Critical Materials: Perspectives from the industry, government, and research communities,” Fall ACS Meeting, Virtual meeting, San Francisco, CA, August 16–20, 2020. (INVITED KEYNOTE BROADCAST).
465. Everly, D.; Anderson, C.; Jansone-Popova, S.; Bryantsev, V.; Moyer, B. Flotation of Bastnaesite Ore Using Novel Collectors. Processing of Critical Materials Symposium, Proc. 59TH Annual Conference of Metallurgists (COM 2020), Virtual meeting, Oct. 14–15, 2020.
466. Moyer, B. A.; Bryantsev, V. S.; Jansone-Popova, S. Unlocking the Secrets of Diglycolamides as Extractants for Rare Earths. Ninth Biennial Symposium on Emerging Trends in Separation Science and Technology (SESTEC 2020), held online March 22–26, 2021. (INVITED PLENARY LECTURE)
467. Moyer, B. A.; Lyon, K. L. New Rare Earth Extractants with Enhanced Selectivity and Efficiency. Natural Resources Canada CanmetMINING Webinar Series, held online March 25, 2021. (INVITED)
468. Einkauf, J. D.; Bryantsev, V.; Custelcean, R.; Moyer, B. A. Sulfate Recognition by a Pyridine-Functionalized Diiminoguanidinium Photoswitch: Structural and Kinetic Studies. Spring 2021 ACS National Meeting, San Antonio, TX (Virtual), Apr. 5–16, 2021.
469. Moyer, B. A. Approaches to Diverse Separations Challenges in the Critical Materials Institute. Center for Sustainable Separation of Metals, Center for Sustainable Separation of Metals, Univ. of Pennsylvania (Virtual), July 21, 2021. (INVITED)
470. Custelcean, R.; Bryantsev, V.; Jansone-Popova, S.; Moyer, B. A. Iminoguanidines: From Anion Recognition and Separation to Carbon Capture. DOE/BES Separation Science PI Meeting, Washington, DC (Virtual), Aug. 10–12, 2021.
471. Jansone-Popova, S.; Ivanov, A.; Popovs, I; Jiang, D.-e..; Idorbo, J.-C.; Luo, H.; Dai, S.; Moyer, B. A. Transforming Critical Materials Separation using Precision Control. DOE/BES Separation Science PI Meeting, Washington, DC (Virtual), Aug. 10–12, 2021.
472. Bessen, N.; Stamberga, D.; Moyer, B. A. Development of More Hydrolytically Stable Alkyl Guanidines. Fall 2021 American Chemical Society National Meeting, Atlanta, GA (Virtual), August 22–26, 2021.
473. Einkauf, J. D.; Bryantsev, V.; Custelcean, R.; Moyer, B. A. Sulfate Recognition by a Pyridine-Functionalized Diiminoguanidinium Photoswitch: Structural, Kinetic, and Thermodynamic Studies. Spring 2022 ACS National Meeting, San Diego, CA (Virtual), Mar. 20–24, 2022.
474. Demsey, J.; Lin, L.; Moyer, B. A.; Doughty, B.; Theile, N. A. Unconventional Ligand Design Strategies for Precision Recovery of Rare Earth Elements. Spring 2022 ACS National Meeting, San Diego, CA (Virtual), Mar. 20–24, 2022.
475. Moyer, B. A. Progress in Developing Technologies for Diversifying the Supply of Critical Materials. Japan-US Bilateral Meeting on Critical Materials (virtual), Critical Materials Institute, Ames Lab, IA, Mar. 9, 2022. (Invited)
476. Moyer, B. A. Chemical Separation Challenges in Diversifying the Supply of Critical Materials. *Science for a Circular Economy* Webinar Series, Argonne National Laboratory, March 17, 2022. (Invited)
477. Moyer, B. A. The Grand Challenge of Rare Earth Separations. Critical Materials RD&D Coordination Meeting Series: Rare Earth Elements. Virtual USDOE workshop. April 25, 2022. (Keynote, invited)
478. Jansone-Popova, S.; Lyon, K. L.; Bhave, R. R.; Islam, S.; Thiele, N. H.; Perez-Garcia, M.; Moyer, B . A. Revolutionizing Processes to Advance Rare Earth Element Separations. TechConnect World Innovation Conference & Expo, Washington, DC, June 13–15, 2022. (Invited)
479. Paranthaman, P. M.; Bhave, R.; Popovs, I.; Moyer, B. A.; Caldwell, J. T.; Pecharsky, V. K.; Lograsso, T. A.; Krenrich, J.; Lyon, K.; Lister, T.; Navrotsky, A.; Zhao, F.; Sutherland, J.; Mcdonald, A.; Harrison, S. Recovery of Lithium from Brines and Clay Minerals and Recycled Lithium-ion Batteries. TechConnect World Innovation Conference & Expo, Washington, DC, June 13–15, 2022. (Invited)
480. Moyer, B. A.; Jansone-Popova, S.; Bryantsev, V.; Lyon, K. L. Fundamentals and Application of Diglycolamide Extractants for the Hydrometallurgical Separation of Rare Earths. International Solvent Extraction Conference (ISEC 2022), Gothenburg, Sweden, Sept. 26–Oct. 1, 2022. (Plenary lecture, invited)
481. Moyer, B. A. Mining, Extraction, Concentration, and Separation of Rare Earths: Through the Eyes of a Separations Chemist. Lecture for Short Course “Rare Earth Elements: Mine to Magnet and Beyond” sponsored by the Critical Materials Institute, Colorado School of Mines, Golden CO, Jan. 23–24, 2023 (Invited).
482. Moyer, B. A.; Bessen, N. P. Next-Generation Solvent for Caustic-Side Solvent Extraction of Cesium from Supernatant Tank Waste. Waste Management 2023 (WM2023), Phoenix, AZ, Feb. 26–Mar. 2, 2023.
483. Lyon, K. L.; Jansone-Popova, S.; Brigham, D. M.; Greenhalgh, M. R.; Welty, A. K.; Warner, M. M.; Moyer, B. A. Intralanthanide Separation Processes Using Neutral Diglycolamide Extractants. Hydrometallurgy 2023, 9th International Symposium on Hydrometallurgy, Phoenix, AZ, Aug. 20–23, 2023.

## PUBLICITY

1. **Exceptionally Efficient Extraction May Improve Management of Nuclear Fuel** [*ORNL*](http://phys.org/) *News* - Clever chemistry separates americium from an americium–europium mixture. March 28, 2018 <https://www.ornl.gov/news/exceptionally-efficient-extraction-may-improve-management-nuclear-fuel>
2. **Exceptionally Efficient Extraction May Improve Management of Nuclear Fuel** [*Phys.org*](http://phys.org/) - leader of ORNL’s Chemical Separations Group and the paper’s senior author. This feat would require separation of minor actinides. March 29, 2018 <https://phys.org/news/2018-03-exceptionally-efficient-nuclear-fuel.html>
3. **Efficient Extraction May Improve Management of Nuclear Fuel** *Homeland Security News Wire* - manage the waste stream. ORNL says that a team at the Department of Energy’s Oak Ridge National Laboratory has designed and synthesized March 29, 2018
<http://www.homelandsecuritynewswire.com/dr20180330-efficient-extraction-may-improve-management-of-nuclear-fuel>
4. **Four ORNL Researchers Elected AAAS Fellows** *ORNL News Release* - Bruce Moyer, leader of the Chemical Separations Group in the Chemical Sciences Division, was elected by the AAAS section on chemistry for “exemplary service, research and technology development in the field of separation science and technology benefiting the environment, nuclear energy and critical materials.” <https://www.ornl.gov/news/four-ornl-researchers-elected-aaas-fellows>
5. **ORNL develops sorbent to recover lithium from geothermal brines** *ORNL*—In the quest for domestic sources of lithium to meet growing demand for battery production, scientists at the Department of Energy’s Oak Ridge National Laboratory are advancing a sorbent that can be used to more efficiently recover the material from brine wastes at geothermal power plants. January 21, 2020 <https://www.ornl.gov/news/ornl-develops-sorbent-recover-lithium-geothermal-brines>
6. "Innovative Separations R&D Needs for Advanced Fuel Cycles" Workshop, Aug. 30–Sep. 1, 2021. Web site https://fuelcycleseparations.ornl.gov/ (Live as of June 25, 2021).
7. Notice of Intent to Issue Request for Proposal No.l NAWI-2-2021, National Alliance for Water Innovation (NAWI), April 2021 <https://www.nawihub.org/s/NAWI-NOI-for-BP2-RFP-Final.pdf> .
8. Request for Proposals (RFP): RFP#: NAWI-2-2021, National Alliance for Water Innovation (NAWI), May 24, 2021, [https://static1.squarespace.com/static/5ce2f48ba18ae00001cf535f/t/60abe8361b3d406ff8d4a422/1621878859679/NAWI+2-2021+RFP+Final+v1.0.pdf](https://static1.squarespace.com/static/5ce2f48ba18ae00001cf535f/t/60abe8361b3d406ff8d4a422/1621878859679/NAWI%2B2-2021%2BRFP%2BFinal%2Bv1.0.pdf)
9. DOE reports win prestigious tech comms awards. The report titled [*Innovative Separations R&D Needs for Advanced Fuel Cycles Workshop*](https://www.osti.gov/biblio/1844866), for the DOE Office of Nuclear Energy, won an Excellence award in the information materials category. It was co-led by chemist Bruce Moyer, who is an ORNL Corporate Fellow, with contributors from four universities, four national laboratories and DOE headquarters. Stephanie Bruffey, formerly of ORNL, co-wrote the ORNL contributions with Moyer. The report’s all-ORNL publication team comprised technical editor Emily Huckabay and electronic media specialist Kathy Jones of the Technical Communications group and designer Laddy Fields of the Graphics group. https://ornl.sharepoint.com/Pages/Article.aspx?articleId=43113