

SANTA JANSONE-POPOVA, PhD

RESEARCH STAFF SCIENTIST – ORGANIC CHEMIST
OAK RIDGE NATIONAL LABORATORY
Chemical Sciences Division
1 Bethel Valley Road
Oak Ridge, Tennessee 37830

jansonepopos@ornl.gov
Office: (865) 576-2048
Nationality: Latvian
US Legal Permanent Resident (Green Card)

EDUCATION

Ph.D. (2009-2014) UNIVERSITY OF HOUSTON *Houston, TX*

Research Advisor: Professor Jeremy A. May

Thesis: Total Synthesis of Maoecrystal V | Development of New Carbene/Nitrene Cascade Reactions

B.Sc. (2004-2008) UNIVERSITY OF LATVIA *Riga, Latvia*

Research Advisor: Dr. Andris Amolins

Thesis: *ortho*-Lithiation of Bisphenol A Derivatives

PROFESSIONAL EXPERIENCE

2014-present OAK RIDGE NATIONAL LABORATORY – Research Staff Scientist *Oak Ridge, TN*

Principal Investigator:

- 1) SEED “Novel Functional Materials for Metal Ion Separation” 2016-2017
- 2) LDRD “Toward the Exceptionally Stable Anion Conducting Materials” 2017-2019
- 3) CMI “Enhanced Recovery of Target Critical Elements” 2018-2023
- 4) STAAR “Process Chemistry and Integration” 2018-2019

Co-Principal Investigator: BES “Principles of Chemical Recognition and Transport in Extractive Separations” 2014-present

Supervisor/Mentor: 2 postdoctoral researchers, 6 postmaster students/researchers, 1 graduate student, and 2 undergraduate students

NMR Laboratory Manager: liquid- and solid-state, 1D and 2D NMR 2015-present

2009-2014 UNIVERSITY OF HOUSTON, Department of Chemistry *Houston, TX*
Research/Teaching Assistant

2006-2009 LATVIAN INSTITUTE OF ORGANIC SYNTHESIS *Riga, Latvia*
Research Assistant

HONORS AND AWARDS

2016 Young Investigator Fuel Cycle R&D Excellence Award

2013-2014 Dr. Jay K. Kochi Graduate Fellowship in Chemistry

2012-2013 Friends of NSM Graduate Fellowship

LANGUGES: › Native – Latvian › Fluent – English and Russian

PUBLICATIONS

19. 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” *Chemistry—A European Journal*, **2019**, DOI: 10.1002/chem.201806443. [**Journal Cover**]

18. Hachtel, J. A.; Huang, J.; Popovs, I.; Jansone-Popova, S.; Keum, J.; Jakowski, J.; Lovejoy, T. C.; Dellby, N.; Krivanek, O. L.; Idrobo, J. C. “Identification of Site-Specific Isotopic Labeling in Amino Acids by Vibrational Spectroscopy in the Electron” *Science*, **2019**, DOI: 10.1126/science.aav5845.

17. Huang, Z.; Jia, C.; Jansone-Popova, S.; Seipp, C. A.; Custelcean, R. “Selective binding of aqueous sulfate by quaternary ammonium functionalized oligo-ureas” *Chem. Comm.*, **2019**, DOI: 10.1039/C8CC09550G.

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16. Ivanov, A. S.; Parker, B. F.; Zhang, Z.; Aguila, B.; Ma, S.; Jansone-Popova, S.; Arnold, J.; Mayes, R. T.; Dai, S.; Bryantsev, V. S.; Rao, L.; Popovs, I. "Siderophore-inspired chelator hijacks uranium from aqueous medium" *Nat. Comm.*, **2019**, DOI: 10.1038/s41467-019-08758-1.
15. Colt R. Heathman, Travis S. Grimes, Santa Jansone-Popova, Santanu Roy, Vyacheslav S. Bryantsev, Peter R. Zalupski "Influence of Pre-organized N-Donor Group on the Coordination of Trivalent Actinides and Lanthanides by Aminopolycarboxylate Complexant" *Chemistry - A European Journal*, **2018**, DOI: 10.1002/chem.201804723.
14. 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.*, **2018**, *53* (2), 878-883. [Journal Cover]
13. Everly1, D.; Anderson, C.; Bryantsev, V. S.; Jansone-Popova, S. "Improved Collectors for Flotation of Bastnaesite" *Research Development in Material Science*, **2018**, *5*, 1-2.
12. Nziko, V. de P. N.; Shih, J.-L.; Jansone-Popova, S.; Bryantsev, V. S. "Quantum Chemical Prediction of pK_a Values of Cationic Ion-Exchange Groups in Polymer Electrolyte Membranes" *J. Phys. Chem. C*, **2018**, *122*, 2490-2501.
11. Grimes, T. S.; Heathman, C. R.; Jansone-Popova, S.; Ivanov, A. S.; Roy, S.; Bryantsev, V. S.; Zalupski, P. R. "Influence of a Heterocyclic Nitrogen-Donor Group on the Coordination of Trivalent Actinides and Lanthanides by Aminopolycarboxylate Complexants" *Inorg. Chem.*, **2018**, *57*, 1373-1385.
10. Heathman, C. R.; Grimes, T. S.; Jansone-Popova, S.; Ivanov, A. S.; Bryantsev, V. S.; Zalupski, P. R. "Synthesis and characterization of a novel aminopolycarboxylate complexant for efficient trivalent f-element differentiation: *N*-butyl-2-acetamide-diethylenetriamine-*N,N',N'',N'''*-tetraacetic acid" *Dalton Transactions*, **2018**, 47, 1092-1105.
9. Jansone-Popova, S.;* Ivanov, A. S.; Bryantsev, V. S.; Sloop, F. V.; Custelcean, R.; Popovs, I.; Dekarske, M.; Moyer, B. A. "Bis-Lactam-1,10-Phenanthroline (BLPhen), a New Type of Fully Preorganized Mixed *N,O*-Donor Ligand that Extracts Am(III) over Eu(III) with High Efficiency and Selectivity" *Inorganic Chemistry*, **2017**, *56*, 5911-5917.
8. Grimes, T. S.; Heathman, C. R.; Jansone-Popova, S.; Bryantsev, V. S.; Goverapet, S. S.; Nakase, M.; Zalupski, P. R. "Thermodynamic, Spectroscopic, and Computational Studies of f-Element Complexation by *N*-Hydroxyethyl-diethylenetriamine-*N,N',N'',N'''*-tetraacetic Acid" *Inorganic Chemistry*, **2017**, *56*, 1722-1733.
7. Shih, J.-L.; Jansone-Popova, S.; Huynh, C.; May, J. A. "Synthesis of azasilacyclopentenes and silanols via Huisgen cycloaddition-initiated C-H bond insertion cascades" *Chemical Science*, **2017**, *8*, 7132-7137.
6. Jansone-Popova, S.; May, J. A. "Stereo-electronic factors in bridgehead C-H bond insertion: Studies toward the total synthesis of maoecrystal V" *Tetrahedron*, **2016**, *72*, 3734-3747 (invited full article).
5. Vallakati, R.; Lundy, J. B.; Jansone-Popova, S.; May, J. A. Biomimetic Synthesis and Studies Toward Enantioselective Synthesis of Flindersial Alkaloids. *Chirality* **2015**, *27*, 14-17.
4. Jansone-Popova, S.; Le, Phong; May, J. A. "Carbene Cascades for the Formation of Bridged Polycyclic Rings" *Tetrahedron* **2014**, *70*, 4118-4127 (invited full article).
3. Jansone-Popova, S.; May, J. A. "Synthesis of Bridged Polycyclic Ring Systems via Carbene Cascades Terminating in C-H Bond Insertion" *J. Am. Chem. Soc.* **2012**, *134*, 17877-17880.
2. Lundy, J. B.; Jansone-Popova, S.; May, J. A. "The Enantioselective Conjugate Addition of Alkenyl Boronic Acids to Indole-Appended Enones" *Org. Lett.* **2011**, *13*, 4958-4961.

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1. Sire, J.; Klavins, M.; Kreismanis, J.; Jansone, S. "Impact of the Process of Isolating Humic Acids Peat on their Properties" *Can. J. Civ. Eng.* **2009**, *36*, 1–11.

PRESENTATIONS AND PI MEETINGS

10. Jansone-Popova, S.; Bryantsev, V. S.; Healy, M. R.; Popovs, I.; Moyer, B. A.; Zalupski, P. R.; Heathman, C.; Grimes, T. "Design and Synthesis of New Mixed *N,O*-Donor Ligands for Selective An(III)/Ln(III) Separation". *42nd Actinide Separation Conference*, Charleston, SC, May **2018**.

9. Jansone-Popova S.; Moinel, A.; Schott, J. A.; Mahurin, S. M.; Popovs, I.; Veith G. M.; Moyer, B. A. "Efficient Removal of Toxic Cr(VI) from Aqueous Solutions by a New Ion-Exchange Polymer" *2018 BES Separations Science PI Meeting*, Gaithersburg, MD, February **2018**.

8. Santa Jansone-Popova, Bryantsev, V. S.; Sloop, F. V.; Custelcean, R.; Moyer, B. A. "New Mixed-Donor Ligands for Selective An(III)/Ln(III) Separation from Acidic Media" *41th Actinide Separations Conference*, ANL, IL, May **2017**.

7. Jansone-Popova, S.; Thevenet, A.; Custelcean, R.; Moyer, B. A. "Remarkable Recognition of Copper Sulfate Through Self-Assembly of a Ditopic Receptor" *2017 HEC & Sep PI meeting*, XX, April 23-26, **2017**.

6. Jansone-Popova, S.; Thevenet, A.; Custelcean, R.; Moyer, B. A. "Remarkable Recognition of Copper Sulfate Through Self-Assembly of a Ditopic Receptor" *253rd ACS National Meeting*, San Francisco, CA, April 3, **2017**.

5. Santa Jansone-Popova, Bryantsev, V. S.; Sloop, F. V.; Custelcean, R.; Dekarske, M.; Moyer, B. A. "Synthesis and Evaluation of Novel Rigid Bis lactam 1,10-Phenanthroline Extractants for Selective Separation of Am(III) over Ln(III) from Highly Acidic Solutions" *40th Actinide Separations Conference*, San Diego, CA, May 25, **2016**.

4. Santa Jansone-Popova, Bryantsev, V. S.; Sloop, F. V.; Custelcean, R.; Moyer, B. A. "New Mixed-Donor Ligands for Selective An(III)/Ln(III) Separation from Acidic Media" *39th Actinide Separations Conference*, Salt Lake City, UT, May 19-21, **2015**.

3. Jansone-Popova, S.; Custelcean, R.; Moyer, B. A. "Self-Assembled Architectures via Ion-Pair Coordination" *2015 HEC & Sep PI meeting*, Gaithersburg, MD, April 21, **2015**.

2. Jansone-Popova, S.; May, J. A. Synthesis of Bridged Polycyclic Ring Systems via Carbene Cascades Terminating in C-H Bond Insertion. *245th ACS National Meeting*, New Orleans, LA, April 7, **2013**.

1. Jansone-Popova, S.; Katkevics, M.; Amolins, A. *ortho*-Lithiation of Bisphenol A Derivatives. *Balticum Organicum Syntheticum*, International Conference on Organic Synthesis, **2008**.

INVITED TALKS:

3. Jansone-Popova, S. "Selective Receptors in Separation Science - Solving Selectivity Problems with Organic Synthesis" *University of Houston*, October 24, **2017**.

2. Jansone-Popova, S. "Towards the Synthesis of Small Organic Molecules to Advance Separations Science" *Florida International University*, April 27, **2017**.

1. Jansone-Popova, S.; Bryantsev, V. S.; Sloop, F. V.; Custelcean, R.; Dekarske, M.; Moyer, B. A. "New Extractants/Complexants for Minor-Actinide Separation" *ANS Winter Meeting*, Las Vegas, NV, November 8, **2016**.

MEMBERSHIP IN PROFESIONAL ORGANIZATIONS

2013-present AMERICAN CHEMICAL SOCIETY

2016-present AMERICAN NUCLEAR SOCIETY

2017-present Board of Editors of the journal "Solvent Extraction and Ion Exchange"