Curriculum Vitae
M. Parans Paranthaman, Ph.D.
Oak Ridge National Laboratory

Corporate Fellow/UT-Battelle Distinguished Inventor
Email: paranthamanm@ornl.gov; Tel. (865) 386-9030

Education/Training

Institution and Location	Degree	Year(s)	Field of Study
Madurai Kamaraj University, Madurai, India	B.Sc.	1980	Chemistry
Madurai Kamaraj University, Madurai, India	M.Sc.	1982	Chemistry
Indian Institute of Technology, Madras	Ph.D.	1988	Solid state chemistry and Materials science

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Research and Professional Experience

2017-Present: Corporate Fellow, Chemical Sciences Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2021-Present: Oak Ridge Graduate Advisor, The Bredesen Center, The University of Tennessee, Knoxville

2010-2020: Professor, The University of Tennessee, Knoxville, Bredesen Center for Interdisciplinary Research and Graduate Education Faculty

2006-2020: Distinguished Research Staff and Group Leader, Materials Chemistry Group, Chemical Sciences Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

1999-2005: Senior Research Staff, Chemical Sciences Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

1995-1999: Research Staff, Chemistry Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

1993-1994: Post-doctoral Fellow, Chemistry Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

1991-1993: Research Associate, Superconductivity Laboratories, Department of Physics, University of Colorado, Boulder (worked with **Professor Allen M. Hermann**)

1988-1991: Post-doctoral Fellow, Center for Materials Science and Engineering, The University of Texas at Austin (worked with Nobel Prize Winner **Professor John B. Goodenough**)

1982-1988: Research Fellow, Materials Science Research Center, Indian Institute of Technology, Madras, India (Ph.D. Thesis Advisor: **Professors G. V. Subba Rao and G. Aravamudan**)

Editorial Boards – Journals

Associate Editor, Journal of the American Ceramic Society (2004-Present)

Editorial Board, Applied Sciences (2017-2019)
Editorial Board, MRS Advances (2016-2018)
Co-editor, MRS Advances, MRS Spring 2016 Meeting Proceedings, March 2016
Key Reader: Metallurgical and Materials Transactions E: Materials for Energy Systems (2014-2018)
International Editorial Board, European Superconductivity News Foru*m* (2012-Present)
Editorial Board, Advances in Materials Research (2011-Present)
Editorial Board, The Open Applied Physics Journal (2008-Present)
Editorial Board, Superconductor Science and Technology (2003-2009)
Technical Editor, Materials Branch, IEEE Trans. on Applied Superconductivity, Applied Superconductivity Conference, Chicago, Illinois, August 2008
Guest Editor, Special Issue on "Superconducting Wires and Tapes," Journal of Electronic Materials, October 2007
Technical Editor, Materials Branch, IEEE Trans. on Applied Superconductivity, Applied Superconductivity Conference, Seattle, Washington, August 2006
Guest Editor, Special Issue on "High performance YBCO coated conductors," MRS Bulletin, August 2004
Technical Editor, Materials, IEEE Trans. on Applied Superconductivity, Applied Superconductivity Conference, Jacksonville, Florida, October 2004
Technical Editor, Materials Branch, IEEE Trans. on Applied Superconductivity, Applied Superconductivity Conference, Houston, Texas, August 2002

Editor – Books

Co-Editor, Book on "Semiconductor Materials for Solar Photovoltaic Cells," Springer, 2015
Co-Editor, Book on "Advances in Materials Science for Environmental and Energy Technologies II," *Ceramic Transactions,* Volume 241, John Wiley & Sons, Inc., 2013
Co-Editor, Book on "High Temperature Superconductors," Wiley-VCH, 2010
Co-Editor, Book on "Flux Pinning and AC Loss Studies on YBCO Coated Conductors," Nova Science Publishers, 2007
Co-Editor, Book on "High-Temperature Superconductor Materials, Devices, and Applications," *Ceramic Transactions,* Volume 160, The American Ceramic Society, Ohio, 2004
Co-Editor, Book on "Materials for High-Temperature Superconductor Technologies," Materials Research Society, 2002

Professional Activities

- Fellow: National Academy of Inventors (NAI) (2018)
- Fellow: American Physical Society (APS) (2018)
- Fellow: UT-Battelle/ORNL Corporate Fellow (2017)
- Fellow: Materials Research Society (MRS) Fellow (2017)
- Fellow: American Association for the Advancement of Science (AAAS) (2016)
- Fellow: The American Ceramic Society (2015)
- Fellow: ASM International, The Materials Information Society (2014)
- Fellow: Institute of Physics, London, UK (2004)
- Member: TMS, 2015-present
- Member: American Chemical Society, 2009-present
- Member: Electrochemical Society, 2009-present

Conferences/Workshops Organized

- Co-Organizer2020 TMS Annual Meeting & Exhibition, Symposium: Recent Advances in Functional Materials and 2D/3D Processing for Sensors and Electronic Applications; Organizer(s):

Pooran Joshi; Ravindra Nuggehalli; Anming Hu; Tolga Aytug; Konstantinos Sierros; Mariappan Paranthaman; Sponsor(s): TMS: Thin Films and Interfaces Committee.

- Organizer, Symposium on Lithium-Ion and Sodium-Ion Batteries, 2016 MRS Spring Meeting, Phoenix, Arizona, March 28-April 1, 2016.
- Technical Chair, DOE Workshop on Materials Innovation for Next Generation R&D Grid Components,, Oak Ridge, TN, August 26-27, 2015
- Co-organized a symposium based on Energy Conversion – Photovoltaic, Concentrating Solar Power, and Thermoelectrics in the Materials Science and Technology Conference in Pittsburgh, PA, October 8-12, 2012.
- Co-organized the High Temperature Superconductivity symposium in the Materials Science and Technology Conference in Houston, Texas, October 17-21, 2010.
- Organizer, Perovskite Oxides: Films, Nanostructures, Properties, and Applications Symposium for the Material Science & Technology 2008 (MS&T'08) Conference and Exposition, October 5-9, 2008, in Pittsburgh, Pennsylvania.
- Organizer, High Temperature Superconductivity symposium for the Material Science & Technology 2007 (MS&T'07) Conference and Exposition, September 16-20, 2007 in Detroit, Michigan.
- Organizer, High Temperature Superconductor Wires & Tapes symposium for the Material Science & Technology 2006 (MS&T'06) Conference and Exposition, October 15-18, 2006 in Cincinnati, Ohio.
- Organizer, High temperature superconductor materials, devices and applications symposium in 106th Annual Meeting & Exposition of the American Ceramic Society, April 2004.
- Organizer, High temperature superconductivity symposium in 2001 Fall MRS meeting, December 2001, Boston, MA
- Co-organizer, International Workshop on Coated Conductors for Applications, Italy, September 2003
- Chair, MRS International Workshop on Superconductors and Applications in Gatlinburg, Tennessee, August 2002
- Chair, 2007 DOE Wire Development Workshop in Panama City, Florida, January 2007
- Chair, 2005 DOE Wire Development Workshop in St. Petersburg, Florida, January 2005
- Chair, 2003 DOE Wire Development Workshop in St. Petersburg, Florida, January 2003

Review Panels

- Member, Deputy Director for Science and Technology Search Committee, 2021
- ORNL Innovation Crossroads Committee Member (2019-Present)
- Committee Member, National Academy of Inventors (NAI) (2018-Present)
- Chair, Bredesen Center Faculty Credentials Committee, Univ. of Tenn., Knoxville (2017-Present)
- Co-chair, ORNL Corporate Fellow Committee (2018-Present)
- Member, Bredesen Center Director Search Committee, Univ. of Tenn., Knoxville (2018)
- ORNL Distinguished Fellows Review Committee Member (2017-2018)
- ORNL Postdoc Group Mentor (2017)
- Reviewer Advanced Light Source User Proposals, Lawrence Berkeley National Laboratory, CA, 2013-Present
- Reviewer DOE SBIR and BES Early Career Proposals, 2009-Present
- Reviewed Hundreds of Journal Articles that were published in several international journals
- Member by invitation on the panel of judges for Department of Energy's university project, and Industry peer reviews, 1999, 2000, 2004
- Member by invitation on the panel of reviewers for various DOE SBIR-STTR, Air Force, and DARPA Programs, 1996-Present

Awards and Honors

2021 ORNL Technology Innovation Award

2021 Silver Medal for **R&D 100 Award**

2021 **FLC Impact Award** – Part of the team at ORNL (ORNL and Partners Help Address Urgent Need for N95 Masks to Protect COVID-19 Responders
2020 ORNL Director's Award: Mission Critical Team Award
2020 ORNL Technology Transfer Award, Awards Night
2020 ORNL Technology Innovation Award
2019 ORNL Director's Award: **Top Scientist** of the Year Award
2019 **Mentor of the Year** at ORNL, Awards Night
2019 ORNL Technology Commercialization Award
2019 TechConnect Innovation Award, Boston MA
2019 Cited in Frontiers of Materials Research (National Academy of Sciences Report)
2018 Fellow of National Academy of Inventors (NAI)
2018 Fellow of American Physical Society (APS)
2017 UT-Battelle **Corporate Fellow**
2017 **Fellow** of Materials Research Society (MRS)
2017 ORNL **Technology Commercialization** Award
2017 Battelle Celebration of Solvers Award, Columbus OH
2017 **Seventh R&D 100 Award** Winner: Additive Manufacturing of Magnets
2016 Cited in The Economist Article – Magnetic Moments (Additive Manufacturing)
2016 UT-Battelle **Inventor of the Year**
2016 ORNL **Technology Commercialization** Award
2016 Sixth **R&D 100 Award**: Waste-tire derived carbon for lithium ion batteries
2016 Scholar of the week, The University of Tennessee, Knoxville
2015 **Fellow** of the American Association for the Advancement of Science (AAAS)
2015 Fifth **R&D100 Award:** Multifunctional Superhydrophobic Transparent Glass Coating. Finalist in two Categories (Mechanical Devices/Materials and Market Disruptor Product).
2015 **Fellow** of the American Ceramic Society
2015 ORNL **Technology Commercialization** Award
2014 **Fellow** of the ASM International
2014 ORNL **Technology Commercialization** Award
2014 The American Ceramic Society: Ceramographic Competition Award: First Place: Scanning Probe Microscopy Category
2014 Parans Paranthaman's journal article was featured on Superconductor Science and Technology journal Cover page during February 2014; Volume 27; 022002 (6pp).
2013 Parans has contributed a book chapter in InTech's book on "Applications of High-Tc Superconductivity" that has been accessed/downloaded more than 3000 times.
2012 Fourth **R&D 100** Award related GaN Based Power Electronics
2011 ORNL Partnership Award
2011 FLC National Award: Excellence in Technology Transfer
2010 FLC Southeast Regional Award: Excellence in Technology Transfer Award
2010 Third **R&D 100** Award for developing "High Performance, High-Tc Superconducting Wires enabled via Self-assembly of Non-superconducting Columnar Defects"
2010 Co-authored top cited Physica C article in the last 5 years (2005-2010)
2009 ***Ranks # 2 in worldwide citations in the HTS research during the last decade*** (1999-2009)
2008 Second National FLC Award for Excellence in Technology Transfer.
2008 Co-authored three highly cited papers in the area of superconductivity since 2003 in PRL, PRB, JAP, APL, and SuST journals

2009 Ranks # 2 in worldwide citations in the HTS research during the last decade (1999-2009)
2008 **National FLC Award** for Excellence in Technology Transfer.
2008 ORNL Key Contributor Award Recipient
2007 Second **R&D 100** Award for 2007 for Developing High-performance LMO-enabled High-Temperature Superconducting Tape
2007 FLC Southeast Regional Award; Excellence in Technology Transfer Award for developing High-performance $LaMnO_3$ Enabled, High-Temperature Superconducting Tape
2007 DOE Excellent Mentor Award
2007 DOE Superconductivity Program Annual Peer Review, "Received top ranking with unprecedented high score of 98.4 out of 100 points" – ORNL-SuperPower CRADA
2007 R&D Significant Technical Accomplishment Award, Oak Ridge National Laboratory
2007 Patent Royalty Award for patents issued and licensed
2006 **Nova 50 Award** for Technical Accomplishments
2006 Excellent Team Award for Technology Transfer to Industries, Awards Night, ORNL
2006 DOE Excellent Mentor Award
2005 Patent Royalty Award for patents issued and licensed
2005 Authored highly cited paper in Appl. Phys. Lett. Since 2000
2005 DOE Excellent Mentor Award
2004 **Fellow** of the Institute of Physics, London, UK
2004 Patent Royalty Award for patents licensed
2003 Selected as one of 11 "**Distinguished Inventors**" at Oak Ridge National Laboratory by the Battelle Memorial Institute, Columbus, Ohio
2003 DOE Superconductivity Program Annual Review, "**Exceptional Accomplishment Award**" – ORNL-AMSC CRADA: Development of 2G YBCO RABiTS Wires.
2000 Patent Royalty Awards for patents and technology transfer
2003 **Authored two highly cited papers in Physica C journal since 1995**
2003 **Authored highly cited paper in Superconductor Science and Technology journal**
2003 Patent Royalty Awards for patents licensed
2001 Federal Laboratory Consortium (**FLC**) Award for Excellence in Technology Transfer
2001 **Energy-100** award for co-developing the RABiTS Technology 1999 **R&D 100** Award for co-developing the RABiTS Technology
1999 R&D *Sustained* Development Accomplishment Award, Oak Ridge National Laboratory
1999 American Museum of Science & Energy (AMSE)'s "Tribute to Tennessee Technology" Award
1999 **World-Class Teamwork Award**, Oak Ridge National Laboratory
1998 Lockheed Martin Energy Research Corp.- Tech. Transfer Award for Technical Support
1997 **Lockheed-Martin NOVA** Award for technical achievement
1997 **Lockheed Martin Scientist of the Year** Award
1997 R&D Significant Technical Accomplishment Award, Oak Ridge National Laboratory
1997 Lockheed Martin Energy Research Corp.- Tech. Transfer Award for Technical Support
1996 Lockheed Martin Energy Research Corp. - Tech. Transfer Award for Technical Support
1996 Department of Energy's (DOE), Office of Science, Materials Science Award for technical achievement In Solid State Physics
1988-1991 Robert A. Welch Fellowship for Postdoctoral Research, Univ. of Texas at Austin

Graduate and Postdoctoral Advisors

Ph.D. (1982-1988) with Prof. G.V. Subba Rao (IIT, Madras);
Postdoc (1988-1991) with Prof. John B. Goodenough (Nobel Prize Winner for Chemistry 2019) (UT, Austin);

Research Associate (1991-1993) with Prof. Allen M. Hermann (Univ. Colorado, Boulder).

Student Supervision Experience

Thesis Advisor and Postgraduate-Scholar Sponsor: I have co-advised several thesis projects of
3 Ph.D. students (through University of Tennessee, Knoxville and University of Houston)
2 M.S. students (through Tenn. Tech. Univ.)
70 Undergraduate students; 5 College teachers; 30 High school teachers, and 15 postdoctoral scholars

Present Post Docs (1):
Tej Lamichhane

Present Graduate Students (1)
Haobo Wang

Teaching Experience
Has delivered over 100 lectures, workshop presentations, invited talks, and contributed talks.
Has taught graduate level classes at the University of Tennessee, Knoxville

Collaborators from other Institutions (past 60 months)
Yury Gogotsi, Drexel University
Stephen Harrison, Simbol Materials
Rich Lee, RJLee Group
John Ormerod, Robert Fredette, Magnet Applications Inc.
Scott McCall, Lawrence Livermore National Laboratory
Tom Lograsso, Ikenna Nlebedim, Ames Laboratory
Frank Johnson, GE
Zaffir Chaudhury, UTRC
David Mandrus, University of Tennessee
W. Wong-Ng, L. P. Cook, NIST, Gaithersburg
D. P. Norton, University of Florida
J. Z. Wu, University of Kansas
Dean Miller, V. Maroni, Argonne National Laboratory
V. Selvamanickam, University of Houston
M. W. Rupich, S. Sathyamurthy, C. Thieme, X. Li, American Superconductor Corporation
Y. Chen, SuperPower
D. Larbalestier, E. Hellstrom, Florida State University
Zhengwei Pan, University of Georgia
Q. Xia, Los Alamos National Laboratory
A. Manthiram, J.B. Goodenough, The University of Texas at Austin
A. Manivannan, National Energy Technology Laboratory
Raghu Bhattacharya, C. Teplin, H. Branz, National Renewable Energy Laboratory.
Thomas Fanning, Jon Bornstein, Steve Hane, Ampulse

List of Publications of Parans Paranthaman

I. Summary of Paranthaman's Publications

Journal Publications: **>446**
Web of Science Total Citations **14,434;** h-index: **61**
Google Scholar Total Citations **20,510;** h-index: **68**
Total Number of Inventions: **>75**
U.S. Patents Issued: **54**

Patent Applications Published: **>16**
Invention Disclosures Submitted/Elected to File/Patent Applications Filed: >**9**
Books co-edited: **7**
Book Chapters/Proceedings Written: **58**
Invited Presentations: **> 100 (since 2010)**

II. Selected List of Journal Publications (Total of > 446)

1. P. Wagh, S. Z. Islam, V. G. Deshmane, P. Gangavarapu, J. Poplawsky, G. Yang, R. Sacci, S. F. Evans, S. Mahajan, M. P. Paranthaman, B. A. Moyer, S. Harrison, and R. Bhave, "Fabrication and characterization of Composite Membranes for the Concentration of Lithium Containing Solutions using Forward Osmosis", Advanced Sustainable Systems, 4 (12) 2000165 (2020). DOI: 10.1002/adsu.202000165.

2. Z. Hood, Y. Cheng, S. F. Evans, and M. P. Paranthaman, "Unraveling the structural properties and dynamics of sulfonated tire-derived solid acid carbon catalysts with neutron vibrational spectroscopy," Catalysis Today, 358, pp 387-393 (2020). https://doi.org/10.1016/j.cattod.2019.10.033

3. T. N. Lamichhane, L. Sethuraman, A. Dalagan, H. Wang, and J. Keller, "Additive manufacturing of soft magnets for electrical machines – a review," Materials Today Physics 15, 100255 (2020). https://doi.org/10.1016/j.mtphys.2020.100255

4. G.S. Larsen, Y. Cheng, L.L. Daemen, T.N. Lamichhane, D.K. Hensley, K. Hong, H.M. Meyer, S.J. Monaco, A.M. Levine, R.J. Lee, E. Betters, K. Sitzlar, J. Heineman, J. West, P. Lloyd, V. Kunc, L. Love, M. Theodore, M.P. Paranthaman, ACS Appl. Polym. Mater. 3 (2) pp. 1022-1031 (2021). DOI 10.1021/acsapm.0c01294

5. C. J. Jafta, X.-G. Sun, H. Lyu, H. Chen, B. P. Thapalia, W. T. Heller, M. J. Cuneo, R. T. Mayes, M. P. Paranthaman, S. Dai and C. A. Bridges, Insight into the Solid Electrolyte Interphase Formation in Bis(fluorosulfonyl)Imide Based Ionic Liquid Electrolytes'" Adv. Func. Mater. 2008708 (2021). DOI: 10.1002/adfm.202008708. BES (February 2021)

6. Xubo Liu, Kinjal Gandha, Ikenna C. Nlebedim, and M. Parans Paranthaman, Alignment of Magnetic Particles in Anisotropic Nd-Fe-B Bonded Magnets, J. Phys. D. Appl. Phys. (in press) 2021. https://doi.org/10.1088/1361-6463/abfbf7

7. T. N. Lamichhane, T. Charlton, B. Andrews, A. K. Pathak, M. Doucet, V. Lauter, J. Katsaras, V. Kunc, and M. P. Paranthaman, "Additive Manufacturing of PPS bonded NdFeB Magnets to design nested Halbach arrays to generate variable magnetic field, 3D Printing and Additive Manufacturing (submitted) 2021.

8. Ange-Lionel Toba, Ruby Nguyen, Carson Cole, Ghanashyam Neupane, Mariappan Parans Paranthaman, "US lithium resources from geothermal and extraction feasibility" *Resources, Conservation & Recycling* 169, 105514 (2021). https://doi.org/10.1016/j.resconrec.2021.105514

9. P. Manikandan, V. G. Pol, S. F. Evans, K. Jackson, C. J. Jafta, C. A. Bridges, S. Dai, A. M. Levine, R. J. Lee, A. K. Naskar, and M. P. Paranthaman, "Encapsulated Sb and Sb_2O_3 Particles in Waste-tire

Derived Carbon as Stable Composite Anodes for Sodium-ion Batteries," *Sustainable Energy & Fuels* 4, 3613-3622 (2020). DOI: 10.1039/D0SE00408A

10. Corson L Cramer, Trevor G Aguirre, Natalie R Wieber, Richard A Lowden, Artem Trofimov, Hsin Wang, Jiaqiang Yan, M Parans Paranthaman, Amy M Elliott, "Binder jet printed WC infiltrated with pre-made melt of WC and Co," *International Journal of Refractory Metals and Hard Materials* 87, 105137 (2020). https://doi.org/10.1016/j.ijrmhm.2019.105137

11. Mihee Ji, Neil R. Taylor, Ivan Kravchenko, Pooran Joshi, Tolga Aytug, Lei R. Cao, and M. Parans Paranthaman, "Demonstration of Large-size Vertical Ga_2O_3 Schottky Barrier Diodes," *IEEE Trans. on Power Electronics* (2020). 10.1109/TPEL.2020.3001530

12. Neil R. Taylor, Yongchao Yu, Mihee Ji, Tolga Aytug, Shannon Mahurin, Richard Mayes, Sacit Cetiner, M. Parans Paranthaman, Dianne Ezell, Lei R. Cao, and Pooran Joshi, "Thermal and radiation response of 4H-SiC Schottky diodes with direct-write electrical contacts," *Appl. Phys. Lett*. 16 (25) 252108 (2020). https://doi.org/10.1063/5.0007496

13. Abhishek Sarkar, Somashekara M. A., M. Parans Paranthaman, Matthew Kramer, Christopher Haase, and Ikenna C. Nlebedim, "Functionalizing Magnet Additive Manufacturing with In-Situ Magnetic Field Source," *Additive Manufacturing* 34, 101289 (2020). https://doi.org/10.1016/j.addma.2020.101289

14. M. Parans Paranthaman, Volkan Yildrim, Tej Nath Lamichhane, Benjamin A. Begley, Brian K. Post, Ahmad A. Hassen, Brian C. Sales, Kinjal Gandha, Ikenna C. Nlebedim, "Additive Manufacturing of Isotropic NdFeB PPS Bonded Permanent Magnets, *Materials* (2020).

15. Kinjal Gandha, Ikenna C. Nlebedim, Vlastimil Kunc, Edgar Lara-Curzio, Robert Fredette, and M. Parans Paranthaman, "Additive Manufacturing of Highly Dense Anisotropic Nd-Fe-B Bonded Magnets," *Scripta Materialia* 183, 91-95 (2020). https://doi.org/10.1016/j.scriptamat.2020.03.012

16. K. Liu, S.S. Tan, J. Moon, C.J. Jafta, C. Li, T. Kobayashi, H. Lyu, C.A. Bridges, S. Men, W. Guo, Y.F. Sun, J.L. Zhang, M.P. Paranthaman, X.G. Sun, and S. Dai, "Insights into the Enhanced Cycle and Rate Performances of the F-Substituted P2-Type Oxide Cathodes for Sodium-Ion Batteries," *Adv. Energy Mater*. 10 (19) 2000135, 2020. DOI: 10.1002/aenm.202000135

17. A. Ying, S. F. Evans, C. Tsouris, M. P. Paranthaman, "Magnetic Sorbent for the Removal of Selenium (IV) from Simulated Industrial Wastewaters: Determination of Column Kinetic Parameters", *Water* 12 (2020) 1234. https://doi.org/10.3390/w12051234

18. Zachary D. Hood, Xuan Yuang, Yunchao Li, Amit Naskar, Miaofang Chi, and M. Parans Paranthaman, "Conversion of Waste Tire Rubber into High-Value-Added Carbon Supports for Electrocatalysis," *J. Electrochem. Soc*. 2018, 165 (14), H881-H888. DOI: 10.1149/2.1081813jes

19. Joseph S. Gnanaraj, Richard J. Lee, Alan M. Levine, Jonathan L. Wistrom, Skyler L. Wistrom, Yunchao Li, Jianlin Li, Kokouvi Akato, Amit K. Naskar, and Mariappan P. Paranthaman, "Sustainable Waste Tire Derived Carbon Electrode as a Potential Anode for Lithium Ion Batteries," *Sustainability*, 2018, 10(8), 2840. doi:10.3390/su10082840

20. Kinjal Gandha, Ling Li, I. C. Nlebedim, Brian K. Post, Vlastimil Kunc, Brian C. Sales, Robert Fredette, John Ormerod, James Bell, and M. Parans Paranthaman, "Additive Manufacturing of Anisotropic

Hybrid NdFeB-SmFeN Nylon Composite Bonded Magnets," *J. Magn. and Magn. Mater.* 2018, 467, 8-13. DOI: 10.1016/j.jmmm.2018.07.021

21. Lili Wu, Ling Li, Samuel F. Evans, Tessa A. Eskander, Bruce A. Moyer, Zhichao Hu, Paul J. Antonick, Stephen Harrison, M. Parans Paranthaman, Richard Riman, and Alexandra Navrotsky, *J Am Ceram Soc.* 102 (5) 2398-2404 (2019). DOI: 10.1111/jace.16150

22. Hailong Lyu, Yunchao Li, Charl Jafta, Craig Bridges, H. M. Meyer, A. Borisevich, M. P. Paranthaman, Sheng Dai, and Xiao-Guang Sun, "Bis(trimethylsilyl) 2-fluoromalonate derivatives as electrolyte additives for high voltage lithium ion batteries," *J. Power Sources* 2019, 412, 527-535. https://doi.org/10.1016/j.jpowsour.2018.11.083

23. Helena A. Khazdozian, Ling Li, M. Parans Paranthaman, Scott K. McCall, Matthew J. Kramer, and I C. Nlebedium, "Low Field Alignment of Anisotropic Bonded Magnets for Additive Manufacturing of Permanent Magnet Motors," *JOM* 71 (2) 626-632 (2019). https://doi.org/10.1007/s11837-018-3242-0

24. C. J. Jafta, X.-G. Sun, G. M. Veith, G. V. Jensen, S. M. Mahurin, M. P. Paranthaman, S. Dai and C. A. Bridges, "Probing Microstructure and Electrolyte Concentration Dependent Cell Chemistry via Operando Small Angle Neutron Scattering," *Energy & Environmental Science*s (2019). DOI: 10.1039/C8EE02703J.

25. C. J. Jafta, B. P. Thapaliya, H. Lyu, J. Xia, H. M. Meyer, M. P. Paranthaman, X.-G. Sun, C. A. Bridges, S. Dai, "Fluorination of Mxene by Elemental F2 as Electrode Material for Lithium-ion Batteries, *ChemSusChem* 12, 1-10 (2019). DOI: 10.1002/cssc.201900003

26. S. F. Evans, M. R. Ivancevic, D. J. Wilson, Z. D. Hood, S. P. Adhikari, A. K. Naskar, C. Tsouris, and M. P. Paranthaman, "Carbon Polyaniline Capacitive Deionization Electrodes with Stable Cycle Life," *Desalination* 464, 25-32 (2019). https://doi.org/10.1016/j.desal.2019.04.002

27. K. Gandha, G. Ouyang, S. Gupta, V. Kunc, M. P. Paranthaman, and I. C. Nlebedim, "Recycling of additively printed rare-earth bonded magnets," *Waste Management* 90, 94-99 (2019). https://doi.org/10.1016/j.wasman.2019.04.040

28. S. F. Evans, M. R. Ivancevic, J. Yan, A. K. Naskar, A. M. Levine, R. J. Lee, C. Tsouris, and M. P. Paranthaman, "Magnetic Adsorbents for Selective Removal of Selenite form Contaminated Water," *Separation Science and Technology* 54 (13), 2138-2146 (2019) https://doi.org/10.1080/01496395.2019.1617742

29. Z. Hood, Y. Cheng, S. F. Evans, and M. P. Paranthaman, "Unraveling the structural properties and dynamics of sulfonated tire-derived solid acid carbon catalysts with neutron vibrational spectroscopy," *Catalysis Today* (2019). https://doi.org/10.1016/j.cattod.2019.10.033

30. L. Wu, S. F. Evans, Y. Cheng, A. Navrotsky, B. A. Moyer, S. Harrison, and M. P. Paranthaman, "Neutron spectroscopic and thermochemical characterization of lithium-aluminum layered double hydroxide chloride: Implications for lithium recovery," *J. Phys. Chem C* 123 (34), 20723-20729 (2019). https://doi.org/10.1021/acs.jpcc.9b04340

31. C. L. Cramer, P. Nandwana, J. Yan, S. F. Evans, A. M. Elliott, C. Chinnasamy, and M. P. Paranthaman, "Binder Jet Additive Manufacturing Method to Fabricate Near Net Shape Crack-free Highly Dense Fe=6.5 wt.% Si Soft Magnets," *Heliyon* 5 (11), e02804 (2019). https://doi.org/10.1016/j.heliyon.2019.e02804

32. Brett G. Compton, James W. Kemp, Timofei V. Novikov, Robert C. Pack, I.C. Nlebedim, Chad E. Duty, Orlando Rios, and M. Parans Paranthaman, "Direct-write 3D-printing of NdFeB bonded magnets," *Materials and Manufacturing Processes* 1-5 (2016) http://dx.doi.org/10.1080/10426914.2016.1221097

33. Ling Li, Brian Post, Vlastimil Kunc, Amy M. Elliott, and M. Parans Paranthaman, "Additive manufacturing of near-net-shape bonded magnets: prospects and challenges," *Scripta Materialia* **135**, 100-104 (2017) http://dx.doi.org/10.1016/j.scriptamat.2016.12.035

34. M. P. Paranthaman, I. C. Nlebedim, F. Johnson, and S. K. McCall, "Additive Manufacturing of Permanent Magnets", *Materials Matters* **11** p111-116 (2016) (Sigma Aldrich). http://www.sigmaaldrich.com/content/dam/sigma-aldrich/docs/Aldrich/Brochure/1/material-matters-v11-n4.pdf

35. Ling Li, Angelica Tirado, B. S. Conner, Amy M. Elliott, Orlando Rios, Haidong Zhou, and M. Parans Paranthaman, "Densification and coercivity enhancement of a binder jet printed NdFeB bonded magnet through low-melting eutectic alloy infiltration," *J. Mag. Mag. Mater*. 438, 163-167 (2017). http://dx.doi.org/10.1016/j.jmmm.2017.04.066

36. Niyanth Sridharan, Ercan Cakmak, Fred A. List, Huseyin Ucar, Steve Constantinides, S.S. Babu, S.K. McCall, and M. Parans Paranthaman, "Rationalization of solidification mechanism of Nd-Fe-B magnets during laser directed-energy deposition," *J Mater Sci* 53, 8619 (2018) https://doi.org/10.1007/s10853-018-2178-7

37. L. Li, K. Jones, B. Sales, J. L. Pries, I. C. Nlebedim, K. Jin, H. Bei, B. K. Post, M. S. Kesler, O. Rios, V. Kunc, R. Fredette, J. Ormerod, A. Williams, T. A. Lograsso, M. P. Paranthaman, "Fabrication of Highly Dense Isotropic Nd-Fe-B Bonded Magnets via Extrusion-based Additive Manufacturing," *Additive Manufacturing* 21, 495 (2018). https://doi.org/10.1016/j.addma.2018.04.001

38. Kinjal Gandha, Ling Li, I. C. Nlebedim, Brian K. Post, Vlastimil Kunc, Brian C. Sales, Robert Fredette, John Ormerod, James Bell, and M. Parans Paranthaman, "Additive Manufacturing of Anisotropic Hybrid NdFeB-SmFeN Nylon Composite Bonded Magnets," *J. Magn. and Magn. Mater.* 2018, 467, 8-13. **DOI:** 10.1016/j.jmmm.2018.07.021

39. Y. Li, S. Wan, G.M. Veith, R.R. Unocic, M.P. Paranthaman, S. Dai, and X.G. Sun, "A Novel Electrolyte Salt Additive for Lithium-Ion Batteries with Voltages Greater than 4.7 V," *Adv. Energy Mater.* 7, 1601397 (2017). **DOI:** 10.1002/aenm.201601397

40. J.S. Zhang, J.A. Schott, Y. Li, W.C. Zhan, S.M. Mahurin, K. Nelson, X.G. Sun, M.P. Paranthaman, and S. Dai, "Membrane-Based Gas Separation Accelerated by Hollow Nanosphere Architectures," *Adv. Mater.* 29, 1603797 (2017). **DOI:** 10.1002/adma.201603797

41. I.C. Nlebedim, H. Ucar, C.B. Hatter, R.W. McCallum, S.K. McCall, M.J. Kramer, and M.P. Paranthaman, "Studies on in situ Magnetic Alignment of Bonded Anisotropic Nd-Fe-B Alloy Powders," *J. Mag. And Mag. Mater.* 422, 168 (2017). **DOI:** 10.10161/j.jmmm.2016.08.090

42. Y.F Yue, Y. Li, C.A. Bridges, G. Rother, J.S. Zhang, J.H. Chen, D.K. Hensley, M.K. Kidder, B.C. Richardson, M.P. Paranthaman, and S. Dai, "Hierarchically Superstructured Metal Sulfides: Facile Perturbation-Assisted Nanofusion Synthesis and Visible Light Photocatalytic Characterizations," *ChemNanoMat*. 2, 1104 (2016). **DOI:** 10.1002/cnma.201600292

43. L. Li, A. Tirado, I.C. Nlebedim, O.Rios, B. Post, V. Kunc, R.R. Lowden, E. Lara-Curzio, R. Fredette, J. Ormerod, T.A. Lograsso, and M.P. Paranthaman, "Big Area Additive Manufacturing of High Performance Bonded NdFeB Magnets," *Scientific Reports* 6, 36212 (2016). DOI: 10.1038/srep36212

44. G.E. Jellison, T. Ayug, A.R. Lupini, M.P. Paranthaman, and P.C. Joshi, "Optical Properties of a Nanostructured Glass-based Film using Spectroscopic Ellipsometry," *Thin Solid Films* 617, 38 (2016). **DOI:** 10.1016/j.tsf.2015.12.046

45. A. al-Wahish, U. al-Binni, C.A. Bridges, S. Tang, Z. Bi, M.P. Paranthaman, A. Huq, and D. Mandrus, "In Situ X-ray and Neutron Diffraction of the Rare-Earth Phosphate Proton Conductors Sr/Ca-Doped $LaPO_4$ at Elevated Temperatures," *Chem. Mater.* 28, 7232 (2016). **DOI:** 10.1021/acs.chemmater.6b01531

46. Y. Han, J.M.Y. Carrillo, Z. Zhang, Y. Li, K. Hong, B.G. Sumpter, M. Ohl, M.P. Paranthaman, G.S. Smith, C. Do, "Thermoreversible Morphology and Conductivity of a Conjugated Polymer Network Embedded in Block Copolymer Self-Assemblies," *Small* 12, 4857 (2016). **DOI:** 10.1002/smll.201601342

47. J.E. Mathis, M.K. Kidder, Y. Li, J. Zhang, and M.P. Paranthaman, "Controlled Synthesis of Mesoporous Codoped Titania Nanoparticles and Their Photocatalytic Activity," *Adv. in Nano Research*, 4, 157 (2016). **DOI:** 10.12989/anr.2016.4.3.157

48. Y. Li, G. Fu, M. Watson, S. Harrison, and M.P. Paranthaman, "Monodispersed Li4Ti5O12 with Controlled Morphology as High Power Lithium Ion Battery Anodes," *ChemNanoMat.* 7, 642 (2016). **DOI:** 10.1002/cnma.201600106

49. M.P. Paranthaman, C.S. Shafer, A. Elliott, D. Siddel, M.A. McGuire, R.M. Springfield, J. Martin, R. Fredette, and J. Ormerod, "Binder Jetting: A Novel NdFeB Bonded Magnet Fabrication Process," *JOM* 68, 1978 (2016). **DOI:** 10.1007/s11837-016-1883-4

50. Y. Li, M.P. Paranthaman, K. Akato, A.K. Naskar, A.M. Levine, R.J. Lee, S. Kim, J. Zhang, S. Dai, and A. Manthiram, "Tire-derived Carbon Composite Anodes for Sodium-ion Batteries," *J. Power Sources* 316, 232 (2016). **DOI:** 10.1016/j.jpowsour.2016.03.071

51. M. Naguib, T. Saito, S. Lai, M.S. Rager, T. Aytug, M.P. Paranthaman, M.Q. Zhao, and Y. Gogotsi, "Ti_3C_2Tx (MXene)-Polyacrylamide Nanocomposite Films," *RSC Adv.* 6, 72069 (2016). **DOI:** 10.1039/c6ra10384g

52. M.A. Abreu-Sepulveda, C. Dhital, A. Huq, C.A. Bridge, M.P. Paranthaman, S.R. Narayanan, D.J. Quesnel, D.A. Tryk, and A. Manivannan, "The Influence of Fe Substitution in Lanthanum Calcium Cobalt Oxide on the Oxygen Evolution Reaction in Alkaline Media," *J. Electrochem. Soc*. 163, F1124 (2016). **DOI:** 10.1149/2.1311609

53. M. Abreu-Sepulveda, M. Williams, A. Huq, C. Dhital, Y.C. Li, M.P. Paranthaman, K. Zaghib, A. Manivannan, "Synthesis and characterization of substituted garnet and perovskite-based lithium-ion conducting solid electrolytes," *Ionics* 22 (3) 317-325 (2016). **DOI**:10.1007/s11581-015-1556-2

54. X. G. Sun, Z. Bi, H. Liu, Y. Fang, C. A. Bridges, M. P. Paranthaman, S. Dai, G. M. Brown, "A high performance hybrid battery based on aluminum anode and $LiFePO_4$ cathode," *Chem. Comm*. 52(8), 1713-1716 (2016). **DOI:** 10.1039/c5cc09019a

55. Z. D. Hood, H. Wang, Y. Li, A. S. Pandian, M. P. Paranthaman, and C. Liang, "The filler effect": A study of solid oxide fillers with beta-Li_3PS_4 for lithium conducting electrolytes", *Solid State Ionics* 283, 75-80 (2015). **DOI:**10.1016/j.ssi.2015.10.014

56. Y. Li, M. P. Paranthaman, L. W. Gill, E. W. Hagaman, Y. Wang, A. P. Sokolov, S. Dai, C. Ma, M. F. Chi, G. M. Veith, A. Manthiram, J. B. Goodenough, "Conduction below 100 degrees C in nominal $Li_6ZnNb_4O_{14}$," *J. Mater. Sci.* 51 (2), 854-860 (2016). **DOI:** 10.1007/s10853-015-9408-z

57. S. M. Yang, M. P. Paranthaman, T. W. Noh, S. V. Kalinin, and E. Strelcovt, "Nanoparticle Shape Evolution and Proximity Effects During Tip-Induced Electrochemical Processes," *ACS Nano* 10 (1), 663-671 (2016). **DOI:** 10.1021/acsnano.5b05686

58. J. E. Mathis, J. J. Lieffers, C. Mitra, F. A. Reboredo, Z. Bi, C. A. Bridges, M. K. Kidder, and M. P. Paranthaman, "Increased photocatalytic activity of TiO_2 mesoporous microspheres from codoping with transition metals and nitrogen," *Ceramics International* 42 (2) 3556-3562 (2016). **DOI:** 10.1016/j.ceramint.2015.10.164

59. M. Boota, M.P. Paranthaman, A.K. Naskar, Y.C. Li, K. Akato, Y. Gogotsi, "Waste tire derived carbon-polymer composite paper as Pseudocapacitive electrode with long cycle life," *ChemSusChem* 8 (21) 3576-3581 (2015). **DOI**: 10.1002/cssc.201500866

60. Jinshui Zhang, Ying Bai, Xiao-Guang Sun, Yunchao Li, Bingkun Guo, Jihua Chen, Gabriel M. Veith, Dale K. Hensley, Mariappan Parans Paranthaman, John B. Goodenough, and Sheng Dai, "Superior Conductive Solid-like Electrolytes: Nanoconfining Liquids within the Hollow Structures," *Nano Lett*ers, 15, 1062-1069 (2015); http://dx.doi.org/10.1021/nl5040286

61. S. M. Yang, E. Strelcov, M. P. Paranthaman, A. Tselev, T. W. Noh, and S. V. Kalinin, "Humidity Effect of Nanoscale Electrochemistry in Solid Silver Ion Conductors and the Dual Nature of Its Locality." *Nano Letters* 15, 1062-1069 (2015). http://dx.doi.org/10.1021/nl5040286

62. Sang Mo Yang, M. Baris Okatan, M. Parans Paranthaman, Stephen Jesse, Tae Won Noh, and Sergei V. Kalinin, "Second harmonic detection in the electrochemical strain microscopy of Ag-ion conducting glass." *Appl. Phys. Lett.* 105, 193106 (2014). http://dx.doi.org/10.1063/1.4901736

63. T. Aytug, A.R. Lupini, G.E. Jellison, J.C. Pooran, I.N. Ivanov, L. Tao, P. Weng, R. Menon, R.M. Trejo, E. Lara-Curzio, S.R. Hunter, J.T. Simpson, M. P. Paranthaman, and D.K. Christen, 'Monolithic graded-refractive-index glass-based antireflective coatings: broadband/omnidirectional light harvesting and self-cleaning characteristics,' *J. Mater. Chem. C* 3, 5440 (2015)

64. J. E. Mitchell, D. A. Hillesheim, C. A. Bridges, M. P. Paranthaman, K. Gofryk, M. Rindfleisch, M. Tomsic, and A. S. Sefat, "Optimization of a non-arsenic iron-based superconductor for wire fabrication," *Superconductor Science & Technol.* 28 (4) 045018 (2015) DOI: 10.1088/0953-2048/28/4/045018.

65. Huseyin Ucar, Ikenna C. Nlebedim, M. Parans Paranthaman, and R. William McCallum "Improving the energy product of amorphous Pr-Co-B powders by mechanical milling and nanocrystallization," *Journal of Applied Physics*, 116, 233901 (2014).

66. Loraine Torres-Castro, Jifi Shojan, Christian M. Julien, Ashfia Huq, Chetan Dhital, M. P. Paranthaman, Ram S. Katiyar, and A. Manivannan, "Synthesis, characterization and electrochemical performance of Al-substituted Li_2MnO_3," *Materials Science and Engg. B* 201, 13-22 (2015).

67. Yunchao Li, Mariappan Parans Paranthaman, Lance W. Gill, Edward W. Hagaman, Yangyang Wang, Alexi P. Sokolov, Sheng Dai, Cheng Ma, Miaofang Chi, Gabriel M. Veith, Arumugam Manthiram, and John B. Goodenough, "Conduction Below 100 °C in Nominal $Li_6ZnNb_4O_{14}$," *J. Mater. Sci.* 51 (2), 854-860 (2016). DOE: 10.1007/s10853-015-9408-z

68. Yanfeng Yue, Yunchao Li, Zhonghe Bi, Gabriel M. Veith, Craig A. Bridges, Bingkun Guo, Jihua Chen, David R. Mullins, Sumedh P. Surwade, Shannon M. Mahurin, Hongjun Liu, M. Parans Paranthaman, and Sheng Dai, "A POM-Organic Framework Anode for Li-ion Battery," *J. Mater. Chem. A 3, 22989* (2015). DOE: 10.1039/c5ta06785e

69. Ucar, H.; Nlebedim, I.C.; Paranthaman, M.P.; McCallum, R.W. Evolution of Structural and Magnetic Properties due to Nanocrystallization of Mechanically Milled Amorphous Pr-Co-B Powders. *J. Appl. Phys.* **2014***, 116*(23), 233901. **DOI:** 10.1063/1.4904359

70. Harrison, K. L.; Bridges, C. A.; Segre, C. U.; Varnado, C. D.; Applestone, D.; Bielawski, C. W.; Paranthaman, M. P.; Manthiram, A., 'Chemical and Electrochemical Lithiation of LiVOPO4 Cathodes for Lithium-Ion Batteries.' *Chem. Mat.* **2014**, *26*, (12), 3849-3861.

71. Bi, Z. H.; Paranthaman, M. P.; Guo, B. K.; Unocic, R. R.; Meyer, H. M.; Bridges, C. A.; Sun, X. G.; Dai, S., 'High performance Cr, N-codoped mesoporous TiO_2 microspheres for lithium-ion batteries. *J. Mater. Chem. A* **2014**, *2*, (6), 1818-1824.

72. Cheng, Y. Q.; Bi, Z. H.; Huq, A.; Feygenson, M.; Bridges, C. A.; Paranthaman, M. P.; Sumpter, B. G., An integrated approach for structural characterization of complex solid state electrolytes: the case of lithium lanthanum titanate.' *J. Mater. Chem. A* **2014**, *2*, (7), 2418-2426.

73. Beck, F. R.; Cheng, Y. Q.; Bi, Z. H.; Feygenson, M.; Bridges, C. A.; Moorhead-Rosenberg, Z.; Manthiram, A.; Goodenough, J. B.; Paranthaman, M. P.; Manivannan, A., 'Neutron Diffraction and Electrochemical Studies of $Na_{0.79}CoO_2$ and $Na_{0.79}Co_{0.7}Mn_{0.3}O_2$ Cathodes for Sodium-Ion Batteries. *J. Electrochem. Soc.* **2014**, *161*, (6), A961-A967.

74. Liao, C.; Han, K. S.; Baggetto, L.; Hillesheim, D. A.; Custelcean, R.; Lee, E. S.; Guo, B. K.; Bi, Z. H.; Jiang, D. E.; Veith, G. M.; Hagaman, E. W.; Brown, G. M.; Bridges, C.; Paranthaman, M. P.; Manthiram, A.; Dai, S.; Sun, X. G., 'Synthesis and Characterization of Lithium Bis (fluoromalonato) borate for Lithium-Ion Battery Applications.' *Adv. Energy Mater.* **2014**, *4*, (6) 1301368.

75. Al-Wahish, A.; Jalarvo, N.; Bi, Z.; Herwig, K. W.; Craig Bridges, C. A.; Paranthaman, M. P.; Mandrus, D. 'Quasi-Elastic Neutron Scattering Reveals Fast Proton Diffusion in Ca-Doped $LaPO_4$.' *J. Phys. Chem. C* **2014**, *118*, 20112#20121

76. Naskar A. K.; Bi, Z.; Li, Y.; Akato, S. K.; Saha, D.; Chi, M.; Bridges, C. A.; Paranthaman, M. P., 'Tailored recovery of carbons from waste tires for enhanced performance as anodes in lithium-ion batteries.' *RSC Adv.*, **2014**, *4*, 38213.

77. Bridges, C.A.; Harrison, K.L.; Unocic, R.R.; Idrobo, J.C.; Paranthaman, M.P.; Manthiram, A. Defect chemistry of phospho-olivine nanoparticles synthesized by a microwave-assisted solvothermal process, *J. Solid State Chem*. **2013**, *205*, 197-204.

78. N. Jalarvo, L. Stingaciu, D. Gout, Z. Bi, M. Ohl, and M. Parans Paranthaman, "Proton dynamics in $La_{0.8}Ba_{1.2}GaO_{3.9}{\cdot}nH_2O$ studied by quasielastic incoherent neutron scattering," *Solid State Ionics*, 252, 12 (2013). DOE: 10.1016/j.ssi.201.07.015

79. J. H. Kim, Y. N. Kim, Z. Bi, A. Manthiram, M. P. Paranthaman, and A. Huq, "Overcoming phase instability of $RBaCo_2O_{5+\delta}$ (R=Y and Ho) by Sr substitution for application as cathodes in solid oxide fuel cells," *Solid State Ionics*, 253, 81 (2013). DOI: 10.1016/j.ssi.2013.09.001

80. Jeen, H.; Bi, Z. H.; Choi, W. S.; Chisholm, M. F.; Bridges, C. A.; Paranthaman, M. P.; Lee, H. N., 'Orienting Oxygen Vacancies for Fast Catalytic Reaction.' *Adv. Mater.* **2013**, *25*, (44), 6459-6463.

81. Aytug, T., D.F. Bogorin, M. Paranthaman, J.E. Mathis, J.T. Simpson, and D.K. Christen 'Superhydrophobic ceramic coatings enabled by phase-separated nanostructured composite TiO_2-Cu_2O thin films,' *Nanotechnology* 25, 245601 (2014).

82. Paranthaman, M., T. Aytug, L. Stan, Q. Jia, C. Cantoni, and S.H. Wee, 'Chemical solution based planarization layers for highly aligned IBAD-MgO templates,' *Supercond. Sci. Technol.* 27, 022002 (2014).

83. Duckworth, Robert C., Georgios Polyzos, Parans Paranthaman, Tolga Aytug, Keith Leonard, and Isidor Sauers 'Radiation Resistance of XLPE Nano-dielectrics for Advanced Reactor Application,' *Transactions of the American Nuclear Society* 110, 937 (2014).

84. Saha, D., Li, Y.C., Bi, Z.H., Chen, J.H., Keum, J.K., Hensley, D.K., Grappe, H.A., Meyer, H.M., Dai, S., Paranthaman, M.P., and Naskar, A.K., 'Studies on Supercapacitor Electrode Material from Activated Lignin-Derived Mesoporous Carbon,' *Langmuir* 30, 900-910, 2014.

85. Ö. Polat, T. Aytug, A. R. Lupini, M. Parans Paranthaman, M. Ertugrul, D. F. Bogorin, H. M. Meyer, W. Wang, S. J. Pennycook and D. K. Christen, "Nanostructured columnar heterostructures of J. H and Cu_2O enabled by a thin-film self-assembly approach: Potential for photovoltaics," *Materials Research Bulletin* **48** (2) 352-356, 2013.

86. Yoon, S.; Bridges, C.A.; Unocic, R.R.; Paranthaman, M.P. Mesoporous TiO2 spheres with a nitridated conducting layer for lithium-ion batteries, *J. Mater. Sci*. **2013**, *48*, 5125-5131. DOE: 10.1007/s10853-012-7098-3

87. Jalarvo, N.; Gourdon, O.; Bi, Z.H.; Gout, D.; Ohl, M.; Paranthaman, M.P. Atomic-Scale Picture of the Ion Conduction Mechanism in a Tetrahedral Network of Lanthanum Barium Gallate, *Chem. Mater*. **2013**, *25*, 2741-2748.

88. Guo, B.K.; Sun, X.G.; Veith, G.M.; Bi, Z.H.; Mahurin, S.M.; Liao, C.; Bridges, C.A.; Paranthaman, M.P.; Dai, S. Nitrogen-Enriched Carbons from Alkali Salts with High Coulombic Efficiency for Energy Storage Applications, *Adv. Energy Mater*. **2013**, *3*, 708-712.

89. Harrison, K.L.; Bridges, C.A.; Paranthaman, M.P.; Segre, C.U.; Katsoudas, J.; Maroni, V.A.; Idrobo, J.C.; Goodenough, J.B.; Manthiram, A. Temperature Dependence of Aliovalent-Vanadium Doping in LiFePO4 Cathodes, *Chem. Mater*. **2013**, *25*, 768-781.

90. Bi, Z.H.; Paranthaman, M.P.; Menchhofer, P.A.; Dehoff, R.R.; Bridges, C.A.; Chi, M.F.; Guo, B.K.; Sun, X.G.; Dai, S. Self-organized amorphous TiO2 nanotube arrays on porous Ti foam for rechargeable lithium and sodium ion batteries, *J. Power Sources* **2013**, *222*, 461-466.

91. Bridges, C. A.; Sun, X.G.; Zhao, J.; Paranthaman, M. P.; Dai, S. In Situ Observation of Solid Electrolyte Interphase Formation in Ordered Mesoporous Hard Carbon by Small-Angle Neutron Scattering, *J. Phys. Chem. C* **2012**, *116*, 770-7711.

92. Shin, D.W.; Bridges, C.A.; Huq, A.; Paranthaman, M.P.; Manthiram, A. Role of Cation Ordering and Surface Segregation in High-Voltage Spinel LiMn1.5Ni0.5-xMxO4 (M = Cr, Fe, and Ga) Cathodes for Lithium-Ion Batteries, *Chem. Mater.*, *24*, 3720-3731 (2012). DOI: 10.1021/cm301844w

93. Kim, Y.N.; Kim, J.H.; Huq, A.; Paranthaman, M.P.; Manthiram, A. (Y0.5In0.5)Ba(Co,Zn)(4)O-7 cathodes with superior high-temperature phase stability for solid oxide fuel cells, *J. Power Sources* **2012**, *214*, 7-14.

94. Bi, Z.H.; Pena-Martinez, J.; Kim, J.H.; Bridges, C.A.; Huq, A.; Hodges, J.P.; Paranthaman, M.P. Effect of Ca doping on the electrical conductivity of the high temperature proton conductor $LaNbO_4$, *Int. J. Hydrogen Energy* **2012**, *37,* 12751-12759.

95. Aytug, T.; Maroni, V.A.; Miller, D.J.; Chen, Z.J.; Kropf, A.J.; Zaluzec, N.J.; Zuev, Y.; Specht, E.D.; Paranthaman, M.P. Novel tri-modal defect structure in Nb-doped MOCVD YBa2Cu3O7: a paradigm for pinning landscape control, *Supercond. Sci. Tech.* **2012**, *25*, 095013.

96. Wee, S.H.; Cantoni, C.; Fanning, T.R.; Teplin, C.W.; Bogorin, D.F.; Bornstein, J.; Bowers, K.; Schroeter, P.; Hasoon, F.; Branz, H.M.; Paranthaman, M.P.; Goyal, A. Heteroepitaxial film silicon solar cell grown on Ni-W foils, *Energy & Environmental Science,* **2012**, *5,* 6052-6056.

97. Sathyamurthy, S.; Tuncer, E.; More, K.L.; Gu, B.H.; Sauers, I.; Paranthaman, M.P. Colloidal synthesis of BaF2 nanoparticles and their application as fillers in polymer nanocomposites, *Appl. Phys. A: Mater. Sci. Process.* **2012**, *106*, 661-667.

98. Polat, O.; Ertugrul, M.; Thompson, J.R.; Leonard, K.J.; Sinclair, J.W.; Paranthaman, M.P.; Wee, S.H.; Zuev, Y.L.; Xiong, X.; Selvamanickam, V.; Christen, D.K.; Aytug, T. Superconducting properties of YBa2Cu3O7-delta films deposited on commercial tape substrates, decorated with Pd or Ta nano-islands, *Supercond. Sci. Tech.* **2012**, *25,* 025018.

99. Xie, H.; Li, Y.T.; Han, J.T.; Dong, Y.Z.; Paranthaman, M.P.; Wang, L.; Xu, M.W.; Gupta, A.; Bi, Z.H.; Bridges, C.A.; Nakanishi, M.; Sokolov, A.P.; Goodenough, J.B. **:** Li6La3SnMO12 (M = Sb, Nb, Ta), a Family of Lithium Garnets with High Li-Ion Conductivity, *J. Electrochem. Soc.* **2012**, *159*, A1148-A1151.

100. Yoon, S.; Liao, C.; Sun, X. G.; Bridges, C. A.; Unocic, R. R.; Nanda, J.; Dai, S.; Paranthaman, M. P. Conductive surface modification of LiFePO4 with nitrogen-doped carbon layers for lithium-ion batteries, *J. Mater. Chem.* **2012**, *22*, 4611.

101. Gupta, A.; Murugan, R.; Paranthaman, M. P.; Bi, Z.; Bridges, C. A.; Nakanishi, M.; Sokolov, A. P.; Han, K. S.; Hagaman, E. W.; Xie, H.; Mullins, C. B.; Goodenough, J. B. Optimum lithium-ion conductivity in cubic Li7−xLa3Hf2−xTaxO12, *J. Power Sources* **2012**, *209*, 184-188.

102. Liu, J.; Wu, J.; Edwards, C.M.; Berrie, C.L.; Moore, D.; Chen, Z.; Maroni, V.A.; Paranthaman, M.P.; Goyal, A. Triangular Graphene Grain Growth on Cube-textured Cu Substrates, *Advanced Functional Materials* **2011**, *21*, 3868-3874.

103. Li, Y.; Wang, W.; Qiu, X.F.; Song, L.; Meyer, H.M.; Paranthaman, M.P.; Eres, G.; Zhang, Z.Y.; Gu, B.H. Comparing Cr, and N only doping with (Cr,N)-codoping for enhancing visible light reactivity of TiO2, *Appl. Catal. B-Environ.* **2011**, *110*, 148-153.

104. Teplin, C.W.; Paranthaman, M.P.; Fanning, T.R.; Alberi, K.; Heatherly, L.; Wee, S.H.; Kim, K.; List, F.A.; Pineau, J.; Bornstein, J.; Bowers, K.; Lee, D.F.; Cantoni, C.; Hane, S.; Schroeter, P.; Young,

D.L.; Iwaniczko, E.; Jones, K.M.; Branz, H.M. Heteroepitaxial film crystal silicon on Al2O3: new route to inexpensive crystal silicon photovoltaics, *Energy & Environmental Science* **2011,** *4*, 3346-3350.

105. Liu, H.S.; Bi, Z.H.; Sun, X.G.; Unocic, R.R.; Paranthaman, M.P.; Dai, S.; Brown, G.M. Mesoporous TiO2-B Microspheres with Superior Rate Performance for Lithium Ion Batteries, *Adv. Mater.* **2011**, *23*, 3450.

106. Paranthaman, M.P.; Qui, X.; List, F.A.; Kim, K.; Zhang, Y.; Li, X.; Sathyamurthy, S.; Thieme, C.; Rupich, M.W. Development of Solution Buffer Layers for RABiTS Based YBCO Coated Conductors, *IEEE Trans. On Appl. Supercond*. **2011**, *21* (3), 3059-306l.

107. Aytug,T.; Chen, Z.; Maroni, V.A.; Miller, D.J.; Cantoni, C.; Specht, E.D.; Kropf, A.J.; Zaluzec, N.; Zhang, Y.; Zuev,Y.; Paranthaman, M.P. Nano-engineered defect structures in Ce- and Ho-doped metal-organic chemical vapor deposited YBa2Cu3O6+δ films: Correlation of structure and chemistry with flux pinning performance, *J. Appl. Phys*. **2011**, *109* (11), 113923.

108. Polat, O.; Aytug, T.; Paranthaman, M.P.; Kim, K.; Lupini, A.R.; Meyer, H.M.; Qiu, X.; Thompson, J.R.; Christen, D.K.; Selvamanickam, V. Pinning Enhancements in YBCO films via Nanoengineered $LaMnO_3$:MgO composite cap layer, *IEEE Trans. On Appl. Supercond.* **2011**, *21*(3), 3171-3174.

109. Kim, J.H.; Kim,Y.N.; Bi, Z.; Manthiram, A.; Paranthaman, M.P.; Huq, A. High temperature phase stabilities and electrochemical properties of InBaCo(4-x)Zn(x)O(7) cathodes for intermediate temperature solid oxide fuel cells, *Electrochim. Acta* **2011**, *56*, 5740-5745.

110. Bridges, C.A.; Sefat, A.S.; Payzant, E.A.; Cranswick, L.; Paranthaman, M.P. Structure and magnetic order in the series Bi(x)RE(1-x)Fe(0.5)Mn(0.5)O(3) (RE=La,Nd), *J. Solid State Chem.* **2011**, *184*, 830-842.

111. Qiu, X.; Howe, J.Y.; Meyer, H.M.; Tuncer, E.; Paranthaman, M.P. Thermal stability of HfO(2) nanotube arrays, *Applied Surface Science* **2011**, *257*, 4075-4081.

112. Liu, H.; Bi, Z.; Sun, X.G.; Unocic, R.R.; Paranthaman, M.P.; Dai, S.; Brown, G. M. Mesoporous TiO2 #B Microspheres with Superior Rate Performance for Lithium Ion Batteries, *Adv. Mater.* **2011**, [10.1002/adma.201100599].

113. Bi, Z.; Bridges, C.A.; Kim, J.H.; Huq, A.; Paranthaman, M. P. Phase stability and electrical conductivity of Ca-doped LaNb1-xTaxO4-δ high temperature proton conductors, *J. Power Sources* **2011**, *196*, 7395-7403.

114. Aytug,T.; Paranthaman, M.P.; Specht, E. D.; Zhang, Y.; Kim, K.; Zuev, Y. L. Cantoni, C.; Goyal, A.; Christen, D. K.; Maroni, V. A.; Chen, Y. M.; Selvamanickam, V. Enhanced flux pinning in MOCVD-YBCO films through Zr additions: systematic feasibility studies, *Supercond. Sci. Technol*. **2010**, *23*, 014005.

115. Maroni,V. A.; Kropf, A. J.; Aytug, T.; Paranthaman, M.P. Raman and x-ray absorption spectroscopy characterization of Zr-doped MOCVD YBa2Cu3O6+delta, *Supercond. Sci. Technol*. **2010,** *23*, 014020.

116. Paranthaman, M.P.; Sathyamurthy, S.; Li, X. P.; Specht, E. D.; Wee, S. H.; Cantoni, C.; Goyal, A.; Rupich, M. W. Modified Lanthanum Zirconium Oxide buffer layers for low-cost, high performance YBCO coated conductors, *Physica C* **2010**, *470*, 352-356.

117. Polat, O.; Aytug, T.; Paranthaman, M.P.; Leonard, K. J.; Lupini, A. R.; Pennycook, S. J.; Meyer, H. M.; Kim, K.; Qiu, X.; Cook, S.; Thompson, J. R.; Christen, D. K.; Goyal, A.; Xiong, X.; Selvamanickam, V. An evaluation of phase separated, self-assembled LaMnO3-MgO nanocomposite films directly on IBAD-MgO as buffer layers for flux pinning enhancements in YBa2Cu3O7-δ coated conductors, *J. Mater. Res.* **2010**, *25*, 437-443.

118. Wong, Ng.W.; Yang, Z.; Kaduk, J. A.; Cook, L. P.; Paranthaman, M.P. Interactions of Ba2YCu3O6+y with the Gd3NbO7 buffer layer in coated conductors, *J. Solid State Chem.* **2010**, *183*, 649-657.

119. Pan, Z.W.; Tao, J.; Zhu, Y.M.; Huang, J.F.; Paranthaman, M.P. Spontaneous Growth of ZnCO3 Nanowires on ZnO Nanostructures in Normal Ambient Environment: Unstable ZnO Nanostructures, *Chem. Mater.* **2010**, *22,* 149-154.

120. Wang, W.; Howe, J.Y.; Li, Y.A.; Qiu, X.F.; Joy, D.C.; Paranthaman, M.P.; Doktycz, M.J.; Gu, B.H. A surfactant and template-free route for synthesizing ceria nanocrystals with tunable morphologies, *J. Mater. Chem.* **2010**, *20,* 7776-7781.

121. Zhang, Y.; Specht, E. D.; Cantoni, C.; Christen, D. K.; Thompson, J. R.; Sinclair, J. W.; Goyal, A.; Zuev, Y. L.; Aytug, T.; Paranthaman, M.P.; Chen,Y.; Selvamanickam, V. Magnetic field orientation dependence of flux pinning in (Gd,Y)Ba2Cu3O7-x coated conductor with tilted lattice and nanostructures, *Physica* C **2009**, *469*, 2044-2051.

122. Bridges,C. A.; Krishnamurthy, V. V.; Poulton, S.; Paranthaman, M.P.; Sales, B. C.; Myers, C.; Bobev, S. Magnetic order in CaMn2Sb2 studied via powder neutron diffraction, *J. of Magnetism and Magnetic Mater*. **2009**, 321, 3653-3657.

123. Qiu, X.; Howe, J.; Cardoso, M.; Polat, O.; Heller, W.; Paranthaman, M.P. Size Control of Highly Ordered HfO2 Nanotube Arrays and A Possible Growth Mechanism, *Nanotechnology* **2009**, *20*, 455601.

124. Pan, H.; Qiu, X.; Zhu, W.; Wang, W.; Paranthaman, M.P.; Eres, G.; Zhang, Z.; Gu, B. Fabrication and characterization of brookite-rich, visible light-active TiO2 films for water splitting, *Appl. Catalysis B: Environmental* **2009**, *93*, 90-95.

125. Zhu, W.; Qiu, X.; Lancu, V.; Chen, X.; Pan, H.; Wang, W.; Dimitrijevic, N.; Rajh, T.; Meyer, H.M.; Paranthaman, M.P.; Stocks, G.M.; Weitering, H.; Gu, B.; Eres, G.; Zhang, Z. Bandgap narrowing of titanium oxide semiconductors by non-compensated anion-cation codoping for enhanced visible-light photoactivity, *Phys. Rev. Lett*. **2009**,*103*, 226401.

126. Hu, M. Z.; Lai, P.; Bhuiyan, M. S.; Tsouris, C.; Gu, B.; Paranthaman, M.P.; Gabitto, J. Synthesis and Characterization of Anodized Titanium Oxide Nanotubes Arrays, *J. Mater. Sci.* **2009**, *44*, 2820-2827.

127. Gu, Z.; Liu, F.; Howe, J.; Paranthaman, M.P.; Pan, Z. Germanium-catalyzed hierarchical Al_2O_3 and SiO_2 nanowire bunch arrays, *Nanoscale* **2009**, *1*, 347-354.

128. Aytug, T.; Paranthaman, M.P.; Heatherly, l.; Zuev, Y.; Zhang, Y.; Kim, K.; Goyal, A.; Maroni, V.A.; Chen, Y.M.; Selvamanickam, V. Deposition studies and coordinated characterization of MOCVD YBCO films on IBAD-MgO templates, *Supercond. Sci. Technol.* **2009**, *22*, 015008.

129. Paranthaman, M.P.; Aytug, T.; Kim, K.; Specht, E.D.; Heatherly, L. Strategic buffer layer development for YBCO conductors, *IEEE Trans. Appl. Supercond.* **2009**, *19*, 3303-3306.

130. Chen,Y.M.; Selvamanickam, V.; Zhang, Y.; Zuev, Y.L.; Cantoni, C.; Specht, E.D.; Paranthaman, M.P.; Aytug, T.; Goyal, A.; Lee, D. Enhanced flux pinning by $BaZrO_3$ and $(Gd, Y)_2O_3$ nanostructures in metal organic chemical vapor deposited GdYBCO high temperature superconductor tapes, *Appl. Phys. Lett.* **2009**, *94*, 062513.

131. Kim, K.H.; Norton, D.P.; Christen, D.K.; Cantoni, C.; Paranthaman, M.P.; Aytug, T. Epitaxial growth of MgO/TiN multilayers on Cu, *Vacuum* **2009**, *83*, 897-901.

132. Polat, O.; Aytug, T.; Paranthaman, M.P.; Kim, K.; Zhang, Y.; Cantoni, C.; Zuev, Y.L.; Goyal, A.; Thompson, J.R.; Christen, D.K.; Xiong, X.; Selvamanickam, V. Properties of YBCO on LaMnO3-capped IBAD MgO-templates without homo-epitaxial MgO layer, *IEEE Trans. Appl. Supercond.* **2009**, *19,* 3315-3318.

133. Wee, S.H.; Shin, J.; Cantoni, C.; Meyer, H.M.; Cook, S.; Zuev, Y.L.; Specht, E.; Xiong, X.M.; Paranthaman, M.P.; Selvamanickam, V.; Goyal A. Phase-Separated, Epitaxial, Nanostructured $LaMnO_3$+MgO Composite Cap Layer Films for Propagation of Pinning Defects in $YBa_2Cu_3O_{7-\delta}$ Coated Conductors, *Appl. Phys. Express* **2009**, *2*, 063008.

134. Pan, Z.; Budai, J.; Dai Z.R.; Liu, W.; Paranthaman, M.P.; Dai, S. Zinc Oxide Microtowers by Vapor Phase Homoepitaxial Regrowth, *Advanced Materials* **2009**, *21*, 890.

135. Gu, Z.; Paranthaman, M.P.; Xu, J.; Pan, W. Aligned ZnO Nanorod Arrays Grown Directly on Zinc Foils and Zinc Spheres by a Low-Temperature Oxidation Method, *ACS Nano* **2009**, *3*, 273-278.

136. Gu, Z.; Paranthaman, M.P.; Pan, Z. Vapor-Phase Synthesis of Gallium Phosphide Nanowires, *Crystal Growth & Design* **2009**, *9*, 525-527.

137. Gu, Z., Liu, F.; Hane, J. Y.; Paranthaman, M.P.; Pan, Z. Three-Dimensional Germanium Oxide Nanowire Networks, *Crystal Growth & Design* **2009**, *9*, 35-39.

138. Bhuiyan, M.S.; Paranthaman, M.P.; Salama, K. Solution-derived textured oxide thin films - a review (vol 19, pg R1, 2006), *Supercond. Sci. Technol*. **2009**, *22,* 049801.

139. Hu, M.Z.; Lai, P.; Bhuiyan, M.S.; Tsouris, C.; Gu, B.; Paranthaman, M.P.; Gabitto, J. Synthesis and Characterization of Anodized Titanium Oxide Nanotubes Arrays, Nanotech Conference & Expo 2009, *Technical Proceedings* **2009**, *1*, 242-245.

140. Polat, O.; Aytug, T.; Paranthaman, M.P.; Kim, K.; Zhang, Y.; Thompson, J.R.; Christen, D.K.; Xiong, X.; Selvamanickam, V. Direct growth of LaMnO3 cap buffer layers on IBAD-MgO for simplified template-based YBa2Cu3O7-δ coated conductors, *J. Mater. Res.* **2008**, *23*, 3021-3028.

141. Hsueh, C.H.; Paranthaman, M.P. Analytical modeling of residual stresses in multilayered superconductor systems, *J. Mater. Sci.* **2008**, *43*, 6223-6232.

142. Aytug, T.; Paranthaman, M.P.; Leonard, K.J.; Kim, K.; Ijaduola, A.O.; Tuncer, E.; Thompson, J.R.; Christen, D.K. Enhanced flux pinning and critical currents in YBa2Cu3O7-δ films by nanoparticle surface decoration: Extension to coated conductor templates, *J. Appl. Phys.* **2008**, *104*, 043906.

143. Bhuiyan, M. S.; Taylor, B. J.; Paranthaman, M.P.; Thompson, J.R.; Sinclair, J.W. Microstructure and magnetic properties of electrodeposited cobalt films, *J. Mater. Sci.* **2008**, *43*, 1644-1649.

144. Dang, Y.Y.; Bhuiyan, M.S.; Paranthaman, M.P. Zirconium Oxide Nanostructures by Anodic Oxidation, *Journal of Undergraduate Research*, Published by US DOE, Office of Science, **2008**, *Vol. VIII*, 48-53.

145. Paranthaman, M.P.; Bhuiyan, M.S.; Sathyamurthy, S.; Heathenry, L.; Cantoni, C.; Goyal, A. Improved textured La2Zr2O7 buffer on La3TaO7 seed for all-MOD Buffer/YBCO coated conductors, *Physica C* **2008**, *468*, 1587-1590.

146. Venkataraman, K.; Hellstrom, E.E.; Paranthaman, M.P. Growth of Lanthanum Manganate Buffer Layers for Coated Conductors via a Metal-Organic Decomposition Process, *IEEE Trans. On Appl. Supercond.* **2008**, *15*, 3005-3008.

147. Bhuiyan, M. S.; Paranthaman, M.P.; Sathyamurthy, S. Chemical solution-based epitaxial oxide films on biaxially textured Ni-W substrates with improved out-of-plane texture for YBCO coated conductors, *J. Electronic Mater.* **2007**, *36*, 1270-1274.

148. Duckworth, R. C.; List, F. A.; Paranthaman, M.P.; Rupich, M.W.; Zhang, Z.; Xie, Y.Y.; Selvamanickam, V. Low ac loss geometries in YBCO coated conductors, *Physica C,* **2007**, *463*, 755-760.

149. Paranthaman, M.P.; Selvamanickam,V.; Matsumoto, K.; Gianni, L.; Zhang, W.; Goyal, A.; Wong-Ng, W. Special section: Superconducting wires and tapes – Foreword, *J. Electron. Mater.* **2007**, *36,* 1229.

150. Goyal, A.; Kang, S.; Li, J.; Martin, P.; Ijaduola, A.; Thompson, J.R.; Paranthaman, M.P. Flux-pinning characteristics as a function of density of columnar defects composed of self-assembled nanodots and nanorods in epitaxial YBa2Cu3O7-delta films for coated conductor applications, *Physica C,* **2007**, *457*, (1-2), 41-46.

151. Aytug, T.; Paranthaman, M.P.; Gapud, A.; Kang, S.; Varela, M.; Martin, P.M.; Raitano, J.M.; Chan, S.W.; Thompson, J.R.; Christen, D. K. Substrate Surface Decoration with CeO_2 Nanoparticles: An Effective Method for Improving Flux Pinning in YBa2Cu3O7-δ films, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3720-3723.

152. Tuncer, E.; Sauers, I.; James, E.R.; Ellis, A.R.; Paranthaman, M.P.; Goyal, A.; More, K. L. Enhancement of dielectric strength in nanocomposites, *Nanotechnology,* **2007**, *18* (32), 325704.

153. Kang, S.; Goyal, A.; Li, J.; Martin, P.; Ijaduola, A.; Thompson, J.R.; Paranthaman, M.P. Flux-pinning characteristics as a function of density of columnar defects comprised of self-assembled nanodots and nanorods in epitaxial YBa2Cu3O7-δ films for coated conductor applications, *Physica C* **2007**, *457* (1-2), 41-46.

154. Bhuiyan, M.S.; Paranthaman, M.P.; Sathyamurthy, S.; List, F.A.; Duckworth, R. Development of modified MOD-TFA approach for YBCO film growth, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3557-3560.

155. Goyal, A.; Li, J.; Martin, P.; Gapud, A.; Specht, E.D.; Paranthaman, M.P.; Li, X.; Zhang, W.; Kodenkandath, T.; Rupich, M.W. Enhanced flux-pinning in Dy-doped MOD YBCO films on RABiTS, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3340-3342.

156. Paranthaman, M.P.; Sathyamurthy, S.; Bhuiyan, M.S.; Martin, P.M.; Aytug, T.; Kim, K.; Fayek, M.; Leonard, K.J.; Li, J.; Goyal, A.; Kodenkandath, T.; Li, X.; Zhang, W.; Rupich, M.W. MOD buffer/YBCO approach to fabricate low-cost second generation HTS wires, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3332-3335.

157. Duckworth, R.C.; Paranthaman, M.P.; Bhuiyan, M.S.; List, F.A.; Gouge, M.J. AC losses in YBCO coated conductor with inkjet filaments, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3159-3162.

158. Zhang, W.; Huang, Y.; Li, X.; Kodenkandath, T.; Rupich, M.W.; Schoop, U.; Verebelyi, D.T.; Thieme, C.L.H.; Siegal, E.; Holesinger, T.G.; Maiorov, B.; Miller, D.J.; Maroni, V.A.; Goyal, A.; Specht, E.; Li, J.; Martin, P.; Paranthaman, M.P. Control of flux pinning in MOD YBCO coated conductor, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3347-3350.

159. Heatherly, L.; Hsu, H.; Li, J.; Sathyamurthy, S.; Paranthaman, M.P.; Goyal, A. Slot-die coating and conversion of LZO on rolling assisted biaxially textured Ni-W substrates with and without a very thin seed layer in low vacuum, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3417-3419.

160. Wee, S.H.; Goyal, A.; Martin, P.M.; Li, J.; Paranthaman, M.P.; Heatherly, L. Fabrication of high-Jc NdBa2Cu3O7-δ and BaZrO3-doped NdBa2Cu3O7-δ Films on RABiTS, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3672-3674.

161. Sathyamurthy, S.; Leonard, K.J.; Bhuiyan, M.S.; Aytug, T.; Kang, S.; Hunt, R.D.; Paranthaman, M.P. Low-cost approaches for flux-pinning enhancements in YBCO films using solution processing, *IEEE Trans. On Appl. Supercond.* **2007**, *17* (2), 3668-3671.

162. Tuncer, E.; Sauers, I.; James, D.R.; Ellis, A.R.; Paranthaman, M.P.; Aytug,T.; Sathyamurthy, S.; More, K.; Li, J.; Goyal, A. Electrical properties of epoxy resin based nano-composites, *Nanotechnology* **2007**, *18* (2), 025703.

163. Sathyamurthy, S.; Kim, K.; Aytug, T.; Paranthaman, M.P. Effect of relative humidity on the crystallization of sol-gel lanthanum zirconium oxide films, *Chem. Mater.* **2006**, *18,* 5829-5831.

164. Aytug, T.; Paranthaman, M.P.; Leonard, K.J.; Kang, S.; Martin, P.M.; Heatherly, L.; Goyal, A.; Ijaduola, A.O.; Thompson, J.R.; Christen, D.K.; Meng, R.; Rusakova, I.; Chu, C.W. Analysis of flux pinning in YBa2Cu3O7-delta films by nanoparticle-modified substrate surfaces, *Physical Review* **2006**, *B 74* (18), 184505.

165. Wee, S.H.; Goyal, A.; Martin, P.M.; Li, J.; Paranthaman, M.P.; Heatherly, L. Strong flux-pinning in epitaxial NdBa2Cu3O7-δ films with columnar defects comprised of self-assembled nanodots of BaZrO3, *Superconductor Science & Technology* **2006**, *19* (10), L42-L45.

166. Bhuiyan, M.S.; Paranthaman, M.P.; Salama, K. Solution-derived textured oxide thin films – A Review, *Supercond. Sci. & Technol.* **2006**, *19* (2), R1-R21.

167. Bhuiyan, M.S.; Paranthaman, M.P.; Goyal, A.; Heatherly, L.; Beach, D.B. Deposition of rare earth tantalite buffers on textured Ni-W substrates for YBCO coated conductor using chemical solution deposition approach, *J. Mater. Res.* **2006**, *21* (3), 767-773.

168. Paranthaman, M.P.; Sathyamurthy, S.; Heatherly, L.; Martin, P.M.; Goyal, A.; Kodenkandath, T.; Li, X.; Thieme, C.L.H.; Rupich, M.W. All MOD buffer/YBCO approach to coated conductors, *Physica C* **2006**, *445,* 529-532.

169. Stewart, E.; Bhuiyan, M.S.; Sathyamurthy, S.; Paranthaman, M.P. Studies of solution deposited cerium oxide thin films on textured Ni-alloy substrates for YBCO superconductor, *Mater. Res. Bull.* **2006**, *41,* 1063-1068.

170. Sathyamurthy, S.; Paranthaman, M.P.; Heatherly, L.; Martin, P.A.; Specht, E.D.; Goyal, A.; Kodenkandath, T.; Li, X.P.; Rupich, M.W. : Solution-processed lanthanum zirconium oxide as a barrier layer for high I-c-coated conductors. *J. Mater. Res.* **2006**, *21,* 910-914.

171. Kim, K.; Paranthaman, M.P.; Norton, D.P.; Aytug, T.; Cantoni, C.; Gapud, A.A.; Goyal, A.; Christen, D.K. A perspective on conducting oxide buffers for Cu-based YBCO-coated conductors, *Supercond. Sci. Technol.* **2006**, *19,* R23-R29.

172. Kang, S.; Goyal, A.; Li, J.; Gapud, A.A.; Martin, P.M.; Heatherly, L.; Thompson, J.R.; Christen, D.K.; List, F.A.; Paranthaman, M.P.; Lee, D.F. High-performance high-T-c superconducting wires, *Science,* **2006**, *311,* 1911-1914.

173. Xu, Y.; Goyal, A.; Leonard, K.J.; Specht, E.D.; Shi, D.; Paranthaman, M.P. Processing dependence of texture, and critical properties of YBa2Cu3O7-delta films on RABiTS substrates by a non-fluorine MOD method, *J. Am. Ceram. Soc.* **2006**, *89,* 914-920.

174. Goyal, A., Kang, S.; Leonard, K.J.; Martin, P.M. Gapud, A.A.; Varela, M.; Paranthaman, M.P.; Ijaduola, A.O.; Specht, E.D.; Thompson, J.R.; Christen, D.K.; Pennycook, S.J.; List, F.A. Irradiation-free, columnar defects comprised of self-assembled nanodots and nanorods resulting in strongly enhanced flux-pinning in YBa2Cu3O7-δ films, *Supercond. Sci. & Technol.* **2005**, *18* (11), 1533-1538.

175. Aytug, T.; Paranthaman, M.P.; Gapud, A.A.; Kang, S.; Christen, H.M.; Leonard, K.J.; Martin, P.M.; Thompson, J.R.; Christen, D.K.; Meng, R.; Rusakova, I.; Chu, C.W.; Johansen, T.H. Enhancement of flux pinning and critical currents in YBa2Cu3O7-δ films by nanoscale iridium pretreatment of substrate surfaces, *J. Appl. Phys.* **2005***, 98* (11), 114309.

176. Aytug, T.; Paranthaman, M.P.; Leonard, K.J.; Zhai, H.Y.; Bhuiyan, M.S.; Payzant, E.A.; Goyal, A.; Sathyamurthy, S.; Beach, D.B.; Martin, P.M.; Christen, D.K.; Li, X.; Kodenkandath, T.; Schoop, U.; Rupich, M.W.; Smith, H.E.; Haugan, T.; Barnes, P.N. Assessment of chemical solution synthesis and properties of Gd2Zr2O7 thin films as buffer layers for second-generation high-temperature superconductor wires, *J. Mater. Res.* **2005**, *20* (11), 2988-2996.

177. Lee, D.F.; Christen, H.M.; List, F.A.; Heatherly, L.; Leonard, K.J.; Rouleau, C.M.; Cook, S.W.; Martin, P.M.; Paranthaman, M.P.; Goyal, A. R&D of RABiTS-based coated conductors: Conversion of ex situ YBCO superconductor using a novel pulsed electron beam deposited precursors, *Physica C* **2005***, 426*, 878-886.

178. Kang, S; Goyal, A.; Leonard, K.J.; Rutter, N.A.; Lee, D.F.; Kroeger, D.M.; Paranthaman, M.P. High critical current YBa2Cu3O7-δ thick films on improved rolling-assisted biaxially textured substrates (RABiTS™), *J. Amer. Ceram. Soc.* **2005***, 88* (10), 2677-2680.

179. Aytug, T.; Paranthaman, M.P.; Zhai, H.Y.; Leonard, K.J.; Gapud, A.A.; Thompson, J.R.; Martin, P.M.; Goyal, A.; Christen, D.K. Iridium: An oxygen diffusion barrier and a conductive seed layer for RABiTS-based coated conductors, *IEEE Trans. on Appl. Supercond.* **2005***, 15* (2), 2977-2980.

180. Bhuiyan, M.S.; Paranthaman, M.P.; Kang, S.; Lee, D.F.; Salama, K. Growth of epitaxial Y2O3 buffer layers on biaxially textured Ni-W substrates for YBCO coated conductors by MOD approach, *Physica C* **2005***, 422* (3-4), 95-101.

181. Bhuiyan, M.S.; Paranthaman, M.P.; Sathyamurthy, S.; Goyal, A.; Salama, K. Growth of rare-earth niobate-based pyrochlores on textured Ni-W substrates with ionic radii dependency, *J. Mater. Res.***2005***, 20* (4), 904-909.

182. Cantoni, C.; Goyal, A.; Schoop, U.; Li, X.; Rupich, M.W.; Thieme, C.; Gapud, A.A.; Kodenkandath, T.; Aytug, T.; Paranthaman, M.P.; Kim, K.; Budai, J.D.; Christen, D.K. Investigation of TiN seed layers for RABiTS architectures with a single-crystal-like out-of-plane texture, *IEEE Trans. on Appl. Supercond.* **2005***, 15* (2), 2981-2984.

183. Christen, H.M.; Lee, D.F.; List, F.A.; Cook, S.W.; Leonard, K.J.; Heatherly, L.; Martin, P.M.; Paranthaman, M.P.; Goyal, A. Rouleau, C.M. Pulsed-electron-deposition of fluorine based precursors for YBa2Cu3O7-x coated conductors, *Supercond. Science & Technology* **2005***, 18* (9), 1168-1175.

184. Kim, K.; Norton, D.P.; Cantoni, C.; Aytug, T.; Gapud, A.A.; Paranthaman, M.P.; Goyal, A.; Christen, D.K. (La,Sr)TiO3 as a conductive buffer for high-temperature superconducting coated conductors, *IEEE Trans. on Appl. Supercond.* **2005***, 15* (2), 2997-3000.

185. Leonard, K.J.; Sathyamurthy, S.; Paranthaman, M.P. Characterization of BaZrO3 nanoparticles prepared by reverse micelle synthesis, *Chem. Mater.* **2005***, 17* (15), 4010-4017.

186. Lu, J.G.; Zhu, J.H.; Payzant, E.A.; Paranthaman, M.P. Electrical conductivity of the manganese chromite spinel solid solution, *J. Amer. Ceram. Soc.* **2005***, 88* (4), 1050-1053.

187. Paranthaman, M.P.; Sathyamurthy, S.; Bhuiyan, M.S.; Goyal, A.; Kodenkandath, T.; Li, X.; Zhang, W.; Thieme, C.L.H.; Schoop, W.; Verebelyi, D.T.; Rupich, M.W. Improved YBCO coated conductors using alternate buffer architectures, *IEEE Trans. on Appl. Supercond.* **2005***, 15* (2), 2632-2634.

188. Paranthaman, M.P.; Aytug, T.; Zhai, H.Y.; Heatherly, L.; Goyal, A.; Christen, D.K. Growth of YBCO films on MgO-based rolling-assisted biaxially textured substrates templates, *Supercond. Science & Technology* **2005***, 18* (3), 223-228.

189. Paranthaman, M.P.; Bhuiyan, M.S.; Sathyamurthy, S.; Zhai, H.Y.; Goyal, A.; Salama, K. Epitaxial Growth of Solution Based Rare Earth Niobate, RE3NbO7 Films on Biaxially Textured Ni-W Substrates, *J. Mater. Res.* **2005***, 20* (1), 6-9.

190. Sathyamurthy, S.; Paranthaman, M.P.; Bhuiyan, M.S.; Payzant, E.A.; Lee, D.F.; Goyal, A.; Li, X.; Kodenkandath, T.; Schoop, U.; Rupich, M. Solution deposited approach to high Jc coated conductor fabrication, *IEEE Trans. on Appl. Supercond.* **2005***, 15* (2), 2974-2976.

191. Schoop, U.; Rupich, M.W.; Thieme, C.; Verbelyi, D.T.; Zhang, W.; Li, X.; Kodenkandath, T.; Nguyen, N.; Siegal, E.; Civale, L.; Holesinger, T.; Maiorov, B.; Goyal, A.; Paranthaman, M.P. Second generation HTS wire based on RABiTS substrates and MOD YBCO, *IEEE Trans. on Appl. Supercond.* **2005***, 15* (2), 2611-2616.

192. Thompson, J.R.; Sorge, K.D.; Cantoni, C.; Kerchner, H.R.; Christen, D.K.; Paranthaman, M.P. Vortex pinning and slow creep in high-Jc MgB2 thin films: a magnetic and transport study, *Supercond. Science & Technology* **2005***, 18* (7), 970-976.

193. Venkataraman, K.; Hellstrom, E.E.; Paranthaman, M.P. Growth of lanthanum manganate buffer layers for coated conductors via a metal-organic decomposition process, *IEEE Trans. on Appl. Supercond.* **2005***, 15* (2), 3005-3008.

194. Zhang, Y.F.; Paranthaman, M.P.; Feenstra, R.; Aytug, T.; Christen, D.K. Comparison of YBa2Cu3O7-δ precursors made using TFA-MOD and BaF2 ex-situ processes and their post-deposition processing under low pressure conditions, *IEEE Trans. on Appl. Supercond.* **2005***, 15* (2), 2659-2662.

195. Sathyamurthy, S.; Leonard, K.J.; Dabestani, R.T.; Paranthaman, M.P. Reverse Micellar Synthesis of Cerium Oxide Nanoparticles, *Nanotechnology* **2005***, 16* (9), 1960-1964.

196. Aytug, T.; Paranthaman, M.P.; Zhai, H.Y.; Gapud, A.A.; Leonard, K.J.; Martin, P.M.; Goyal, A.; Thompson, J.R.; Christen, D.K. An approach for electrical self-stabilization of high-temperature superconducting wires for power applications, *Appl. Phys. Lett.* **2005***, 85* (14), 2887-2889.

197. Zhu, J.H.; Zhang, Y.; Basu, A.; Lu, Z.G.; Paranthaman, M.P.; Lee, D.F.; Payzant, E.A. LaCrO3-based coatings on ferritic stainless steel for solid oxide fuel cell interconnect applications, *Surf. Coat. Technol.* **2004***, 17,* 65-72.

198. Sathyamurthy, S.; Paranthaman M.P.; Zhai H. Y.; Kang S.; Aytug T.; Cantoni C.; Leonard K.J.; Payzant, E.; Christen H.M.; Goyal A. Chemical Solution Deposition of Lanthanum Zirconate Barrier Layers Applied to Low-cost Coated-conductor Fabrication, *J. Mater. Res*. **2004**, *19* (7), 2117-2123.

199. Yoo, J.; Leonard, K.J.; Lee, D.F.; Hsu, H.S.; Heatherly, L.; List, F.A.; Rutter, N.A.; Goyal, A.; Paranthaman, M.P.; Kroeger, D.M. Effects of Conversion Parameters on the Transport Properties of YBCO Films in the BaF2 Ex Situ Process, *J. Mater. Res.* **2004**, *19* (4), 1281-1289.

200. Venkataraman, K.; Lee, D.F.; Leonard, K.; Heatherly, L.; Cook, S.; Paranthaman, M.P.; Mika, M.; Maroni, V.A. Reel-to-reel X-ray Diffraction and Raman Microscopy Analysis of Differentially Heat-treated Y-BaF2-Cu Precursor Films on Meter-length RABiTS, *Supercond. Sci. Technol.* **2004***, 17* (6), 739-749.

201. Purnell, A. J.; Cohen, L.F.; Zhai, H.Y.; Christen, H.M.; Paranthaman, M.P.; Lowndes, D.H.; Hao, L.; Gallop, J.C. Nonlinear Microwave Response of an MgB2 Thin Film, *Supercond. Sci.Technol.* **2004***, 17* (4), 681-684.

202. Lee, D.F.; Leonard K.J.; Heatherly, L.; Yoo, J.; List, F.A.; Rutter, N.; Cook, S.W.; Sathyamurthy, S.; Paranthaman, M.P.; Martin, P.M.; Goyal, A.; Kroeger, D.M. Reel-to-reel Ex Situ Conversion of High Critical Current Density Electron-beam Co-evaporated BaF2 Precursor on RABiTS, *Supercond. Sci.Technol.* **2004***, 17* (3), 386-394.

203. Zhu, J. H.; Zhang, Y.; Basu, A.; Lu, Z.G.; Paranthaman, M.P.; Lee, D.F.; Payzant, E.A. LaCrO3-based Coatings on Ferritic Stainless Steel for Solid Oxide Fuel Cell Interconnect Applications, *Surface & Coatings Technology,* **2004***, 177*, 65-72.

204. Yoo, J.; Leonard, K. J.; Hsu, H.S.; Heatherly, L.; List, F.A.; Lee, D.F.; Gapud, A.A.; Martin, P.M.; Cook, S.W.; Paranthaman, M.P.; Goyal, A.; Kroeger, D.M. The Growth of YBCO Films with High Critical Current at Reduced Pressures using the BaF2 Ex-Situ Process, *Supercond. Sci. Technol.* **2004***, 17*(10), 1209.

205. Paranthaman, M.P.; Izumi, T. High-Performance YBCO-Coated Superconductor Wires, *MRS Bulletin*, **2004**, *29* (8), 533-536.

206. Xu, Y.; Goyal, A.; Lian, J.; Rutter, N.A.; Shi, I; Sathyamurthy, S.; Paranthaman, M.P.; Wang, L.; Martin, P.M.; Kroeger, D.M. Preparation of YBCO Films on CeO2-Buffered (001) YSZ Substrates by a Non-Fluorine MOD Method, *J. Amer. Ceram. Soc.* **2004***, 87*, 1669-1676.

207. Goyal, A.; Paranthaman, M.P.; Schoop, U. The RABiTS Approach: Using Rolling-Assisted Biaxially Textured Substrates for High-Performance YBCO Superconductors, *MRS Bulletin,* **2004***, 29* (8), 552-561.

208. Andreone, A.; Di Gennaro, E.; Lamura, G.; Salluzzo, M.; Purnell, A.; Cohen, L.F.; Hao, L.; Gallop, J.; Cantoni, C.; Paranthaman, M.P. A study on the nonlinear microwave electrodynamic response of e-beam evaporated MgB2 superconducting thin films, *Supercond. Sci. Technol.* ***2003****,16* (2), 260-263.

209. Leonard, K.J.; Goyal, A.; Kroeger, D.M.; Jones, J.W.; Kang, S.; Rutter, N.; Paranthaman, M.P.; Lee, D.F.; Kang, B.W. Thickness dependence of microstructure and critical current density of YBa2Cu3O7-δ on rolling-assisted biaxially textured substrates, *J. Mater. Res.* **2003***, 18* (5), 1109-1122.

210. Sathyamurthy, S.; Paranthaman, M.P.; Zhai, H.Y.; Kang, S.K.; Christen, H.M.; Cantoni, C.; Goyal, A.; Martin, P.M. Solution processing of lanthanum zirconate films as single buffer layers for high Ic YBCO coated conductors, *IEEE T. Appl. Supercon.* **2003***, 13* (2), 2658-2660 Part 3.

211. Aytug, T.; Paranthaman, M.P.; Kang, S.; Zhai, H.Y.; Leonard, K.J.; Vallet, C.E.; Sathyamurthy, S.; Christen, H.M.; Goyal, A.; Christen, D.K. LaMnO3: A single oxide buffer layer for high-Jc YBa2Cu3O7-δ coated conductors, *IEEE T. Appl. Supercon*. **2003**, *13* (2), 2661-2664 Part 3.

212. Cheggour, N.; Ekin, J.W.; Clickner, C.C.; Verebelyi, D.T.; Thieme, C.L.H.; Feenstra, R.; Goyal, A.; Paranthaman, M.M. Transverse compressive stress effect in Y-Ba-Cu-O coatings on biaxially textured Ni and Ni-W substrates, *IEEE T. Appl. Supercon.* **2003***, 13* (2), 3530-3533.

213. Paranthaman, M.P.; Aytug, T.; Kang, S.; Feenstra, R.; Budai. J.D.; Christen, D.K.; Arendt, P.N.; Stan. L.; Groves. J.R.; DePaula. R.F.; Foltyn, S.R.; Holesinger, T.G. Fabrication of high Jc YBa2Cu3O7-δ tapes using the newly developed lanthanum manganate single buffer layers, *IEEE T. Appl. Supercon.* **2003***, 3* (2), 2481-2483 Part 3.

214. Verebelyi, D.T.; Schoop, U.; Thieme, C.; Li, X.; Zhang, W.; Kodenkandath, T.; Malozemoff, A.P.; Nguyen, N.; Siegal, E.; Buczek, D.; Lynch, J.; Scudiere, J.; Rupich, M.; Goyal, A.; Specht, E.D.; Martin, P.; Paranthaman, M.P. Uniform performance of continuously processed MOD-YBCO-coated conductors using a textured Ni-W substrate, *Supercond. Sci. Technol.* **2003***, 16* (5), L19-L22.

215. Xu, Y.; Goyal, A.; Rutter, N.A.; Shi, D.; Paranthaman, M.P.; Sathyamurthy, S.; Martin, P.M.; Kroeger, D.M. Fabrication of high-critical current density YBa2Cu3O7-δ films using a fluorine-free sol gel approach, *J. Mater. Res.* **2003***, 18* (3), 677-681.

216. Li, X.; Rupich, M.W.; Zhang, W.; Nguyen, N.; Kodenkandath, T.; Schoop. U.; Verebelyi, D.T.; Thieme, C.; Jowett, M.; Arendt, P.N.; Foltyn, S.R.; Holesinger, T.G.; Aytug, T.; Christen, D.K.; Paranthaman, M.P. High critical current MOD ex situ YBCO films on RABiTS (TM) and MgO-IBAD templates, *Physica C* **2003***, 390* (3), 249-253.

217. Aytug, T.; Goyal, A.; Rutter, N.; Paranthaman, M.P.; Thompson, J.R.; Zhai, H.Y.; Christen, D.K. High critical current density YBa2Cu3O7-δ coatings on LaMnO3-buffered biaxially textured Cu tapes for coated conductor applications, *J. Mater. Res.* **2003**, *18* (4), 872-877.

218. Aytug, T.; Paranthaman, M.P.; Kang, B.W.W.; Beach, D.B.; Sathyamurthy, S.; Specht, E.D.; Lee, D.F.; Feenstra, R.; Goyal, A.; Kroeger, D.M.; Leonard, K.J.; Martin, P.M.; Christen, D.K. Reel-to-reel continuous chemical solution deposition of epitaxial Gd2O3 buffer layers on biaxially textured metal tapes for the fabrication of YBa2Cu3O7-δ coated conductors, *J. Am. Ceram. Soc.* **2003***, 86* (2), 257-265.

219. Bhuiyan, M.S.; Paranthaman, M.P.; Sathyamurthy, S.; Aytug, T.; Kang, S.; Lee, D.F.; Goyal, A.; Payzant, E.A.; Salama, K. MOD approach for the growth of epitaxial CeO2 buffer layers on biaxially textured Ni-W substrates for YBCO coated conductors, *Supercond. Sci. Technol.* **2003***, 16* (11), 1305-1309.

220. Aytug, T.; Paranthaman, M.P.; Thompson, J.R.; Goyal, A.; Rutter, N.; Zhai, H.Y.; Gapud, A.A.; Ijaduola, A.O.; Christen, D.K. Electrical and magnetic properties of conductive Cu-based coated conductors, *Appl. Phys. Lett.* **2003***, 83* (19), 3963-3965.

221. Purnell A. J.; Zhukov, A.A.; Nurgaliev, T.; Lamura, G.; Bugoslavsky, Y.; Lockman, Z.; MacManus-Driscoll, J.L.; Zhai, H.Y.; Christen, H.M.; Paranthaman, M.P.; Lowndes, D.H.; Jo, M.H.; Blamire, M.G.; Hao, L.; Gallop, J.C.; Cohen, L.F. The microwave surface impedance of MgB2 thin films, *Supercond. Sci. Technol*. **2003**, *16* (1), 1-6.

222. Paranthaman, M.P.; Aytug, T.; Christen, D.K.; Arendt, P.N.; Foltyn, S.R.; Groves, J.R.; Stan, L.; DePaula, R.F.; Wang, H.; Holesinger, T.G. Growth of thick YBa2Cu3O7-δ films carrying a critical current of over 230 A/cm on single LaMnO3-buffered ion-beam assisted deposition MgO substrates, *J. Mater. Res.* **2003***, 18* (9), 2055-2059.

223. Gupta, A.; Narayan, H.; Astill, D.; Kanjila, D.; Ferdeghini, C.; Paranthaman, M.P.; Narlikar, A.V. Study of magnetization and pinning mechanisms in MgB2 thin film superconductors; effect of heavy ion irradiation, *Supercond. Sci.Technol.* **2003***, 16* (8), 951-955.

224. Rupich, M.W.; Schoop, U.; Verebelyi, D.T.; Thieme, C.; Zhang, W.; Li, X.; Kodenkandath, T.; Nguyen, N.; Siegal, E.; Buczek, D.; Lynch, J.; Jowett, M.; Thompson, E.; Wang, J.S.; Scudiere, J.; Malozemoff, A.P.; Li, Q.; Annavarapu, S.; Cui, S.; Fritzemeier, L.; Aldrich, B.; Craven, C.; Niu, F.; Schwall, R.; Goyal, A.; Paranthaman, M.P. YBCO coated conductors by an MOD/RABiTS™ process, *IEEE Trans. On Appl. Supercond.* **2003***, 13* (2), 2458-2461.

225. Goyal, A.; Feenstra, R.; Paranthaman, M.P.; Thompson, J.R.; Kang, B.Y.; Cantoni, C.; Lee, D.F.; List, F.A.; Martin, P.M.; Lara-Curzio, E.; Stevens, C.; Kroeger, D.M.; Kowalewski, M.; Specht, E.D.; Sathyamurthy, S.; Williams, R.K.; Ericson R.E. Strengthened, biaxially textured Ni substrate with small alloying additions for coated conductor applications, *Physica C* **2002***, 382*, 251-262.

226. Paranthaman, M.P.; Christen, D.K.; Christen, H.M.; Thompson, J.R.; Kerchner, H.R.; Cantoni, C.; Zhai, H.Y. Growth of High Current Density MgB2 Films Using Ex-situ Precursor Approach, *Physica C* **2002***, 378,* 1252-1255.

227. Kaindl, R.A.; Carnahan, M.A.; Orenstein, J.; Chenia, D.S.; Christen, H.M.; Zhai, H.Y.; Paranthaman, M.P.; Lowndes, D.H. Far-Infrared Optical Conductivity Gap in Superconducting MgB2 Films, *Phys. Rev. Lett.* **2002***, 88*, 27003.

228. Sathyamurthy, S.; Paranthaman, M.P.; Aytug, T.; Kang, B.W.; Martin, P.M.; Goyal, A.; Kroeger, D.M.; Christen, D.K. Chemical Solution Deposition of Lanthanum Zirconate Buffer Layers

on Biaxially Textured Ni-1.7% Fe-3% W Alloy Substrates for Coated-Conductor Fabrication, *J. Mater. Res.* **2002***, 17*, 1543-1549.

229. Yang, C.Y.; Babcock, S.E.; Ichinose, A.; Goyal, A.; Kroeger, D.M.; Lee, D.F.; List, F.A.; Norton, D.P.; Mathis, J.E.; Paranthaman, M.P.; Park, C. Microstructure of pulsed laser deposited YBa2Cu3O7-δ films on yttria-stabilized zirconia/CeO2 buffered biaxially textured Ni substrates, *Physica C* **2002***, 377*, 333.

230. Kang, B.W.; Goyal, A.; Lee, D.F.; Mathis, J.E.; Specht, E.D.; Martin, P.M.; Kroeger, D.M.; Paranthaman, M.P.; Sathyamurthy, S. Comparative study of thickness dependence of critical current density of YBa2Cu3O7-δ on (100) SrTiO3 and on rolling-assisted biaxially textured substrates, *J. Mater. Res.* **2002***, 17*, 1750-1757.

231. Bugoslavsky, Y.; Miyoshi, Y.; Perkins, G.K.; Borenov, A.V.; Lockman, Z.; MacManus-Driscoll, J.L.; Cohen, L.F.; Caplin, A.D.; Zhai, H.Y.; Paranthaman, M.P.; Christen, H.M.; Blamire, M. Structure of the superconducting gap in MgB2 from point-contact spectroscopy, *Supercon. Sci. Technol.* **2002***, 15*, 526-532.

232. Bugoslavsky, Y.; Cowey, L.; Tate, T.J.; Perkins, G.K.; Moore, J.; Lockman, Z.; Berenov, A.; MacManus-Driscoll, J.L.; Caplin, A.D.; Cohen, L.F.; Zhai, H.Y.; Christen, H.M.; Paranthaman, M.P.; Lowndes, D.H.; Jo, M.H.; Blamire, M.G. Effective vortex pinning in MgB2 thin films, *Supercond. Sci. Technol.* **2002***, 15* (10), 1392-1397.

233. Paranthaman, M.P.; Aytug,T.; Sathyamurthy, S.; Beach, D.B.; Goyal, A.; Lee, D.F.; Kang, B.W.; Heatherly, L.; Specht, E.D.; Leonard, K.J.; Christen, D.K.; Kroeger, D.M. Bulk Solution Techniques to Fabricate High Jc YBCO Coated Conductors, *Physica C* **2002***, 378*, 1009.

234. Andreone, A.; Di Gennaro, E.; Lamura, G.; Salluzzo, M.; Le Cochec, J.; Gauzzi, A.; Cantoni, C.; Paranthaman, M.P.; Ceresara, S.; Giunchi, G. Study of the electrodynamic response of MgB2 sintered pellets and thin films, *Int. J. Mod. Phys. B* **2002***, 16*, 1599-1603.

235. Andreone, A.; Cassinese, A.; Cantoni, C.; Di Gennaro, E.; Lamura, G.; Maglione, M.G.; Paranthaman, M.P.; Salluzzo, M.; Vaglio, R. Study of the microwave electrodynamic response of MgB2 thin films, *Physica C* **2002**, *372-376*, 1287-1290.

236. Zhukov, A.A.; Purnell, A.; Miyoshi, Y.; Bugoslavsky,Y.; Lockman, Z.; Berenov, A.; Zhai, H.Y.; Christen, H.M.; Paranthaman, M.P.; Lowndes, D.H.; Jo, W.H.; Blamire, M.G.; Hao, L.; Gallop, J.; MacManus-Driscoll, J.L.; Cohen, L.F. Microwave surface resistance of MgB2, *Appl. Phys. Lett.* **2002***, 80*, 2347-2349.

237. Sathyamurthy, S.; Paranthaman, M.P.; Zhai, H.Y.; Christen, H.M.; Martin, P.M.; Goyal, A. Lanthanum zirconate: A single buffer layer processed by solution deposition for coated conductor fabrication, *J. Mater. Res.* **2002***, 17* (9), 2181-2184.

238. Aytug, T.; Paranthaman, M.P.; Zhai, H.Y.; Christen, H.M.; Sathyamurthy, S.; Christen, D.K.; Ericson, R.E. Single buffer layers for La MnO3 or La0.7Sr0.3 MnO3 for the development of YBa2Cu3O7-δ coated conductors: A comparative study, *J. Mater. Res.* **2002***, 17* (9), 2193-2196.

239. Zhukov, A.A.; Purnell, A.; Miyoshi, Y.; Bugoslavsky, Y.; Lockman, Z.; Berenov, A.; Zhai, H.Y.; Christen, H.M.; Paranthaman, M.P.; Lowndes, D.H.; Jo, M.H.; Blamire, M.G.; Hao, L.; Gallop, J.; MacManus-Driscoll, J.L.; Cohen, L.F. Microwave surface resistance of MgB2, *Appl. Phys. Lett.* **2002***, 80* (23), 4461.

240. Jin, R.; Paranthaman, M.P.; Zhai, H.Y.; Christen, H.M.; Christen, D.K.; Mandrus, D. Unusual Hall effect in superconducting MgB2 films, *Phys. Rev. B* **2001**, 64, 220506.

241. Paranthaman, M.P.; Chirayil, T.G.; List, F.A.; Cui, X.; Goyal, A.; Lee, D.F.; Specht, E.D.; Martin, P.M.; Williams, R.K.; Kroeger, D.M.; Morrell, J.S.; Beach, D.B.; Feenstra, R.; Christen, D.K. Fabrication of Long Lengths of Epitaxial Buffer Layers on Biaxially Textured-Ni Substrates using a Continuous Reel-to-reel Dip-coating Unit, *J. Amer. Ceram. Soc.* **2001***, 84*, 273-278.

242. Allison, S.W.; Beshears, D.L.; Cates, M.R.; Paranthaman, M.P. LED-induced fluorescence diagnostics for turbine and combustion engine thermometry, *Proc. SPIE–Int. Soc. Opt. Eng.* **2001***, 4448*, 28.

243. Paranthaman, M.P.; Cantoni, C.; Zhai, H.Y.; Christen, H.M.; Aytug, T.; Sathyamurthy, S.; Specht, E.D.; Thompson, J.R.; Lowndes, D.H.; Kerchner, H.R.; Christen, D.K. Superconducting MgB2 films via precursor post processing approach, *Appl. Phys. Lett.* **2001***, 78*, 3669-2671.

244. Lu, S.W.; List, F.A.; Cui, X.; Paranthaman, M.P.; Kang, B.W.; Kroeger, D.M.; Goyal, A.; Martin, P.M.; Ericson, R.E.; Electron beam co-evaporation of Y-BaF2-Cu precursor films for YBa2Cu3O7-y coated conductors, *Supercond. Sci. Technol.* **2001***, 14*, 218-223.

245. Cui, X.; List, F.A.; Kroeger, D.M.; Lee, D.F.; Paranthaman, M.P.; Goyal, A.; Kang, B. W.; Specht, E.D.; Martin, P.M. Continuous Deposition of Ex-Situ YBCO Precursor Films on Rolling-Assisted Biaxially Textured Substrates by Electron Beam Evaporation, *Physica C* **2001***, 351*, 175-181.

246. Rupich, M.W.; Annavarapu, Q.; Li, S.; Thieme, C.; Zhang, W.; Prunier, V.; Paranthaman, M.P.; Goyal, A.; Lee, D.F.; Specht, E.D.; List, F.A.; Low Cost Y-Ba-Cu-O Coated Conductors, *IEEE Trans. Appl. Supercond.* **2001***, 11*, 2927-2930.

247. Feldmann, D.M.; Reeves, J.L.; Polyanskii, A.A.; Goyal, A.; Feenstra, R.; Lee, D.F.; Paranthaman, M.P.; Kroeger, D.M.; Christen, D.K.; Babcock, S.E.; Larbalestier, D.C. Magneto-Optical Imaging of Transport Currents in YBa2Cu3O7-x on RABiTS, *IEEE Trans. Appl. Supercond.* **2001***, 11*, 3772-3775.

248. Feldmann, D.M.; Larbalestier, D.C.; Zhang, W.; Li, Q.; Riley, G.N.; Feenstra, R.; Goyal, A.; Lee, D.F.; Paranthaman, M.P.; Kroeger, D.M.; Christen, D.K. Inter- and Intragrain Transport Measurements in YBa2Cu3O7-x Deformation Textured Coated Conductors, *Appl. Phys. Lett.* **2001***, 79*, 3998–4000.

249. Lamura, G.; Gennaro, E.D.; Salluzzo, M.; Andreone, A.; Cochec, J.L.; Gauzzi, A.; Cantoni, C.; Paranthaman, M.P.; Christen, D.K.; Christen, H.M.; Giunchi, G.; Ceresara, S. Magnetic penetration depth measurements in MgB2 sintered pellets and thin films, *Phys. Rev. B,* **2001***, 65*, 20506.

250. Cantoni, C.; Aytug, T.; Verebelyi, D.T.; Paranthaman, M.P.; Specht, E. D.; Norton, D.P.; Christen, D.K. Conductive Buffer Layers and Overlayers for the Electrical Stability of Coated Conductors, *IEEE Trans. Applied Supercond.* **2001***, 11*, 3309-3312.

251. Li, Q.; Zhang, W.; Schoop, U.; Rupich, M.W.; Annavarapu, S.; Verebelyi, D.T.; Thieme, C.L.H.; Prunier, V.; Cui, X.; Teplitsky, M.D.; Fritzemeier, L.G.; Riley, G.N.; Paranthaman, M.P.; Goyal, A.; Lee, D.F.; Holesinger, T.G. Progress in Solution-based YBCO Coated Conductors, *Physica C* **2001***, 357*, 987-990.

252. Lu, S.W.; List, F.A.; Cui, X.; Paranthaman, M.P.; Kang, B.W.; Kroeger, D.M.; Goyal, A.; Martin, P.M.; Ericson, R.E. Electron Beam Co-evaporation of Y-BaF2-Cu Precursor Films for YBa2Cu3O7-y Coated Conductors, *Supercond. Sci. Technol.* **2001***, 14*, 218-223.

253. Paranthaman, M.P.; Chirayil, T.G.; Sathyamurthy, S.; Beach, D.B.; Goyal, A.; List, F.A.; Lee, D.F.; Cui, X.; Lu, S.W.; Kang, B.; Specht, E.D.; Martin, P.M.; Kroeger, D.M.; Feenstra, R.; Cantoni, C.; Christen, D.K. Fabrication of Long Lengths of YBCO Coated Conductors using a Continuous Reel-to-Reel Dip-Coating Unit, *IEEE Trans. Appl. Supercond.* **2001***, 11*, 3146-3149.

254. Aytug, T.; Kang, B.W.; Cantoni, C.; Specht, E.D.; Paranthaman, M.P.; Goyal, A.; Christen, D.K.; Verebelyi, D.T.; Wu, J.Z.; Ericson, R.E.; Thomas, C.L.; Yang, C.Y.; Babcock, S.E. Growth and Characterization of Conductive SrRuO3 and LaNiO3 Multilayers on Textured Ni Tapes for High-Jc YBa2Cu3O7-δ Coated Conductors, *J. Mater. Res.* **2001***, 16*, 2661-2669.

255. Aytug, T.; Paranthaman, M.P.; Kang, B.W.; Sathyamurthy, S.; Goyal, A.; Christen, D.K. La0.7Sr0.3MnO3: A Single, Conductive-oxide Buffer Layer for the Development of YBa2Cu3O7-δ Coated Conductors, *Appl. Phys. Lett.* **2001***, 79*, 2205-2207.

256. Goyal, A.; Lee, D.F.; List, F.A.; Specht, E D.; Feenstra, R.; Paranthaman, M.P.; Cui, X.; Lu, S.W.; Martin, P.M.; Kroeger, D.M.; Christen, D.K.; Kang B.Y.; Norton, D.P.; Park, C.; Verebelyi, D.T., Thompson, J.R.; Williams, R.K.; Aytug, T.; Cantoni, C. Recent Progress in the Fabrication of High-Jc Tapes by Epitaxial Deposition of YBCO on RABiTS, *Physica C* **2001***, 357-360*, 903-913.

257. Paranthaman, M.P.; Thompson, J.R.; Christen, D.K. Effect of Carbon-doping in Bulk Superconducting MgB2 Samples, *Physica C* **2001***, 355*, 1-5.

258. Paranthaman, M.P.; Cantoni, C.; Zhai, H.Y.; Christen, H.M.; Aytug, T.; Sathyamurthy, S.; Specht, E.D.; Thompson, J.R.; Lowndes, D.H.; Kerchner, H.R.; Christen, D.K. Superconducting MgB2 Films via Precursor Post processing approach, *Appl. Phys. Lett.* **2001***, 78*, 3669-2671.

259. Thompson, J. R.; Paranthaman, M.P.; Christen, D.K.; Sorge, K.D.; Kim, H.J.; Ossandon, J.G. High Temporal Stability of Supercurrents in MgB2 Materials, *Supercond. Sci. Technol.* **2001***, 14*, L17-20.

260. Christen, H.M.; Zhai, Y.; Cantoni, C.; Paranthaman, M.P.; Sales, B.; Rouleau, C.; Norton, D.P.; Christen, D.K.; Lowndes, D.H. Superconducting Magnesium Diboride Films with Tc Approximately = 24 K Grown by Pulsed Laser Deposition with in situ Anneal, *Physica C* **2001***, 353*, 157-161.

261. Zhai, H.Y.; Christen, H.M.; Zhang, L.; Paranthaman, M.P.; Fleming, P.H.; Lowndes, D.H. Degradation of Superconducting Properties in MgB2 Films by Exposure to Water, *Supercond. Sci. Technol.* **2001***, 14*, 425-428.

262. Callcott, T.A.; Lin, L.; Woods, G.T.; Zhang, G.P.; Thompson, J.R.; Paranthaman, M.P.; Ederer, D.L. Soft X-ray Spectroscopy Measurements of the p-like Density of States of B in MgB2 and Evidence for Surface Boron Oxides on Exposed Surfaces, *Phys. Rev. B* **2001***, 64*, 132504.

263. Zhai, H.Y.; Christen, H.M.; Zhang, L.; Cantoni, C.; Paranthaman, M.P.; Sales, B.C.; Christen, D.K.; Lowndes, D.H. Superconducting Magnesium Diboride Films on Si with Tc0 ~ 24 K Grown via Vacuum Annealing from Stoichiometric Precursors, *Appl. Phys. Lett.* **2001***, 79*, 2603-2605.

264. Zhai, H.Y.; Christen, H.M.; Zhang, L.; Paranthaman, M.P.; Cantoni, C.; Sales, B.C.; Fleming, P.H.; Christen, D.K.; Lowndes, D.H. Growth Mechanism of Superconducting MgB2 Films Prepared by Various Methods, *J. Mater. Res.* **2001***, 16*, 2759-2762.

265. Morrell, J.S.; Xue, Z.B.; Specht, E.D.; Goyal, A.; Martin, P.M.; Lee, D.F.; Feenstra, R.; Verebelyi, D.T.; Christen, D.K.; Chirayil, T.G.; Paranthaman, M.P.; Vallet, C.E.; Beach, D.B. Epitaxial Growth of Gadolinium Oxide on Roll-Textured Nickel Using a Solution Growth Technique, *J. Mater. Res.* **2000***, 15*, 621-628.

266. Matsubara, M.; Paranthaman, M.P.; Allison, S.W.; Cates, M.R.; Beshears, D.L.; Holcomb, D.E. Preparation of Cr-doped Y3Al5O12 Phosphors by Heterogeneous Precipitation Methods and their Luminescent Properties, *Materials Research Bulletin* **2000***, 35*, 217-224.

267. Lao, J.Y.; Wang, J.H.; Wang, D.Z.; Tu, Y.; Yang, S.X.; Wu, H.L.; Ren, Z.F.; Verebelyi, D.T.; Paranthaman, M.P.; Aytug, T.; Christen, D.K.; Bhattacharya, R.N.; Blaugher, R.D. Synthesis and Characterization of Chromium-containing, Thallium-based 1212 Films, *Physica C* **2000***, 333*, 221-228.

268. Lao, J. Y.; Wang, J.H.; Wang, D.Z.; Yang, S.X.; Tu, Y.; Wen, J.G.; Wu, H.L.; Ren, Z.F.; Verebelyi, D.T.; Paranthaman, M.P.; Aytug, T.; Christen, D.K.; Bhattacharya, R.N.; Blaugher, R.D. Synthesis and Characterization of Thallium-Based 1212 Films with High Critical Current Density on LaAlO3 Substrates, *Supercond. Sci. and Technol.* **2000***, 13*, 173-177.

269. Verebelyi, T.; Christen, D.K.; Feenstra, R.; Cantoni, C.; Goyal, A.; Lee, D.F.; Paranthaman, M.P.; Arendt, P.N.; DePaula, R.F.; Groves, J.R.; Prouteau, C. Low Angle Grain Boundary Transport in YBa2Cu3O7-δ Coated Conductors, *Appl. Phys. Lett.* **2000***, 76*, 1755-1757.

270. Yang, C.Y.; Pashitski, A.; Polyanskii, A.; Larbalestier, D.C.; Babcock, S.E.; Goyal, A.; List, F.A.; Park, C.; Paranthaman, M.P.; Norton, D.P.; Lee, D.F.; Kroeger, D.M. Microstructural Homogeneity and Electromechanical Connectivity of YBa2Cu3O7-δ Grown on Rolling-Assisted Biaxially Textured Coated Conductor Substrates, *Physica C* **2000***, 329,* 114-120.

271. Yang, C.Y.; Ichinose, A.; Babcock, S.E.; Morrell, J.S.; Mathis, J.E.; Verebelyi, D.T.; Paranthaman, M.P.; Beach, D.B.; Christen, D.K. Microstructure of a High Jc Laser-ablated YBa2Cu3O7-δ/Sol-gel Deposited NdGaO3 Buffer Layer/(001) SrTiO3 Multi-layer Structure, *Physica C* **2000***, 331*, 73-78.

272. Aytug, T.; Wu, J.Z.; Cantoni, C.; Verebelyi, D.T.; Specht, E.D.; Paranthaman, M.P.; Norton, D.P.; Christen, D.K.; Ericson, R.E.; Thomas, C.L. Growth and Superconducting Properties of YBa2Cu3O7-δ Films on Conductive SrRuO3 and LaNiO3 Multilayers for Coated Conductor Applications, *Appl. Phys. Lett.* **2000***, 76*, 760-762.

273. Malozemoff P.; Annavarapu, S.; Fritzemeier, L.; Li, Q.; Prunier, V.; Rupich, M.; Thieme, C.; Zhang, W.; Goyal, A.; Paranthaman, M.P.; Lee, D.F. Low-cost YBCO Coated Conductor Technology, *Supercond. Sci. Technol.* **2000***, 13*, 473-476.

274. Chirayil, T.G.; Paranthaman, M.P.; Beach, D.B.; Lee, D.F.; Goyal, A.; Williams, R.K.; Cui, X.; Kroeger, D.M.; Feenstra, R.; Verebelyi, D.T.; Christen, D.K. Epitaxial Growth of La2Zr2O7 Thin Films on Rolled Ni-substrates by Sol-gel Process for High Tc Superconducting Tapes, *Physica C* **2000***, 336*, 63-69.

275. Paranthaman, M.P.; Park, C.; Cui, X.; Goyal, A.; Lee, D.F.; Martin, P.M.; Chirayil, T.G.; Verebelyi, D.T.; Norton, D.P.; Christen, D.K.; Kroeger, D.M. YBCO Coated Conductors with High Engineering Current Density, *J. Mater. Res.* **2000***, 15*, 2647-2652.

276. Xie, Y.Y.; Aytug, T.; Wu, J.Z.; Verebelyi, D.T.; Paranthaman, M.P.; Christen, D.K. Epitaxy of HgBa2CaCu2O6 Superconducting Films on Biaxially Textured Ni Substrates, *Appl. Phys. Lett.* **2000***, 77*, 4193-4195.

277. Holzapfel, B.; Verebelyi, D.; Cantoni, C.; Paranthaman, M.P.; Sales, B.; Feenstra, R.; Christen, D.; Norton, D.P. Low Angle Grain Boundary Transport Properties of Undoped and Doped Y123 Thin Film Bicrystals, *Physica C* **2000***, 341-348*, 1431-1434.

278. Annavarapu, S.; Fritzemeier, L.; Li, Q.; Malozemoff, A.; Prunier, V.; Rupich, M.W.; Thieme, C.; Zhang, W.; Gopal, M.; Seleznev, I.; Cima, M.J.; Paranthaman, M.P.; Goyal, A.; Lee, D.F. Progress Towards A Low-Cost Conductor Technology, *Physica C* **2000**, *341-348*, 2319-2322.

279. Aytug, T.; Wu, J.Z.; Kang, B.W.; Verebelyi, D.T.; Cantoni, C.; Specht, E.D.; Goyal, A.; Paranthaman, M.P. An All-Sputtered Buffer Layer Architecture for High-Jc YBa2Cu3O7-δ Coated Conductors, *Physica C* **2000***, 340*, 33-40.

280. Cantoni, C.; Norton, D.P.; Christen, D.K.; Goyal, A.; Kroeger, D.M.; Verebelyi, D.T.; Paranthaman, M.P. Transport and Structural Characterization of Epitaxial Nd1+xBa2-xCu3Oy Thin Films Grown on LaAlO3 and Ni Metal Substrates by Pulsed-laser Deposition, *Physica C* **1999***, 324*, 177-186.

281. Kerchner, H.R.; Norton, D.P.; Goyal, A.; Budai, J.D.; Christen, D.K.; Kroeger, D.M.; Paranthaman, M.P.; Lee, D.F.; List, F.A.; Brandt, E.H. Alternating Transport-Current Flow in Superconductive Films: The Role of a Geometrical Barrier to Vortex Motion, *Phys. Rev. B* **1999***, 60*, 6878-6883.

282. Goyal, A.; Feenstra, R.; List, F.A.; Paranthaman, M.P.; Lee, D.F.; Kroeger, D.M.; Beach, D.B.; Morrell, J.S.; Chirayil, T.G.; Verebelyi, D.T.; Cui, X.; Specht, E.D.; Christen, D.K.; Martin, P.M. Using RABiTS to Fabricate High-Temperature Superconducting Wire, *Journal of Minerals Metals and Materials* **1999***, 51*, 19-23.

283. Goyal, S.; Ren, X.; Specht, E.D.; Kroeger, D.M.; Feenstra, R.; Norton, D.; Paranthaman, M.P.; Lee, D.F.; Christen, D.K. Texture Formation and Grain Boundary Networks in Rolling-Assisted-Biaxially-Textured-Substrates (RABiTS) and in Epitaxial YBCO Films on such Substrates, *MICRON*, Special issue entitled Advanced Microscopy Studies of High Temperature Superconductors, *30*, **1999**, 463-478.

284. Glavee, G.N.; Hunt, R.D.; Paranthaman, M.P. Low Temperature Preparation of BaCeO3 and Ce0.75Zr0.25O2 Thin Films Using Sol-gel Processing Techniques, *Mater. Res. Bull.* **1999***, 34*, 817-825.

285. Park, D.P.; Norton, D.; Christen, D.K.; Verebelyi, D.T.; Feenstra, R.; Budai, J.D.; Lee, D.F.; Goyal, A.; Specht, E.D.; Kroeger, D.M.; Paranthaman, M.P. Long-Length Fabrication of YBCO on Rolling-Assisted-Biaxially-Textured-Substrates (RABiTS) using Pulsed Laser Deposition, *IEEE Trans. Appl. Supercond.* **1999***, 9*, 2276-2279.

286. Cui, X.; List, F.A.; Kroeger, D.M.; Goyal, A.; Lee, D.F.; Mathis, J.; Specht, E.D.; Martin, P.M.; Feenstra, R.; Verebelyi, D.T.; Christen, D.K.; Paranthaman, M.P. Reel-to-Reel Continuous Deposition

of Epitaxial CeO2 Buffer Layers on Biaxially Textured Ni Tapes by Electron Beam Evaporation, *IEEE Trans. Appl. Supercond.* **1999***, 9*, 1967-1970.

287. Paranthaman, M.P.; Lee, D.F.; Feenstra, R.; Goyal, A.; Verebelyi, D.T.; Christen, D.K.; Specht, E.D.; List, F.A.; Martin, P.M.; Kroeger D.M.; Ren, D.F.; Li, W.; Wang, D.Z.; Lao, J.Y.; Wang, J.H. Optimization of Buffer Layers on Rolled-Ni Substrates for High Current YBCO and Tl,Bi-1223 Coated Conductors using Ex-situ Precursor Approaches, *IEEE Trans. Appl. Supercond.* **1999***, 9*, 2268-2271.

288. Rupich, M.W.; Palm, W.; Zhang, W.; Siegal, E.; Annavarapu, S.; Fritzemeier, L.; Teplitsky, M.D.; Thieme, C.; Paranthaman, M.P. Growth and Characterization of Oxide Buffer Layers for YBCO Coated Conductors, *IEEE Trans. Appl. Supercond.* **1999***, 9*, 1527-1530.

289. Sheth, V.; Lasrado, V.; White, M.; Paranthaman, M.P. Bench Scale Evaluation of Batch Mode Dip-Coating of Sol-Gel LaAlO3 Buffer Material, *IEEE Trans. Appl. Supercond.* **1999***, 9*, 1514-1518.

290. Shoup, S.S.; Shanmugham, S.; Cousins, D.; Hunt, A.T.; Paranthaman, M.P.; Goyal, A.; Martin, P.M.; Kroeger, D.M. Low-Cost Combustion Chemical Vapor Deposition of Epitaxial Buffer Layers and Superconductors, *IEEE Trans. Appl. Supercond.* **1999***, 9*, 2426-2429.

291. Bhattacharya, R.; Parilla, P.A.; Blaugher, R.D.; Ren, Z.F.; Li, W.; Wang J.H.; Wang, Y.T.; Hermann, A.M.; Paranthaman, M.P.; Goyal, A.; Verebelyi, D.T.; Christen, D.K. Superconducting Thallium Oxide Films from Electrodeposited Precursors, *IEEE Trans. Appl. Supercond.* **1999***, 9*, 1681-1683.

292. Parilla, P. A.; Carlson, C.M.; Wang, Y.T.; Bhattacharya, R.N.; Blaugher, R.D.; Ginley D.S.; Paranthaman, M.P.; Goyal, A.; Christen, D.K.; Kroeger, D.M. Buffer Layers and Thallination of Tl-based Superconductors on Flexible Metal Substrates, IEEE Trans. *Appl. Supercond.* **1999***, 9*, 1673-1676.

293. Matsubara, M.; Paranthaman, M.P.; Chirayil, T.G.; Sun, E.Y.; Martin, P.M.; Kroeger, D.M.; Verebelyi, D.T.; Christen, D.K. Preparation of Epitaxial YbBa2Cu3O7-δ on SrTiO3 Single Crystal Substrates using a Solution Process, *J. Appl. Phys.* **1999***, 38*, L727-730.

294. Ren, Z.F.; Li, W.; Wang, D.Z.; Lao, J.Y.; Wang, J.H.; Paranthaman, M.P.; Verebelyi, D.T.; Christen, D.K.; Lee, D.F.; Goyal, A.; Kroeger, D.M. In-Plane Aligned Superconducting Tl0.78Bi0.22Sr1.6Ba0.4Ca2Cu3O9 Films on Rolling Assisted Biaxially Textured Substrates, *Physica C* **1999**, *313*, 241-245.

295. Sun, E. Y.; Goyal, A.; Norton, D.P.; Park, C.; Kroeger, D.M.; Paranthaman, M.P.; Christen, D.K. High-Resolution TEM/AEM Characterization of Epitaxial Oxide Multilayers Fabricated by Laser Ablation on Biaxially Textured Ni, *Physica C* **1999***, 321*, 29-38.

296. Cantoni, C.; Norton, D.P.; Christen, D.K.; Goyal, A.; Kroeger, D.M.; Verebelyi, D.T.; Paranthaman, M.P. Transport and Structural Characterization of Epitaxial Nd1+xBa2-xCu3Oy Thin Films Grown on LaAlO3 and Ni Metal Substrates by Pulsed-Laser Deposition, *Physica C* **1999***, 324*, 177-186.

297. Mathis, J.E.; Goyal, A; Lee, D.F.; List, F.A.; Paranthaman, M.P.; Christen, D.K.; Specht, E.D.; Kroeger, D.M.; Martin, P.M. Biaxially textured YBa2Cu3O7-delta conductors on rolling assisted biaxially textured substrates with critical current densities of 2-3 mA/cm(2), *Jap. J. Appl. Phys. 2* **1998***, 37*, L1379-1382.

298. Norton, D.P.; Park, C.; Prouteau, C.; Christen, D.K.; Chisholm, M.F.; Budai, J.D.; Pennycook, S.J.; Goyal, A.; Sun, E.Y.; Lee, D.F.; Kroeger, D.M.; Specht, E.; Paranthaman, M.P.; Browning, N.D. Epitaxial YBa2Cu3O7 films on rolled-textured metals for high-temperature superconducting applications, *Mater. Sci. Eng. B* **1998***, 56*, 86-94.

299. Shoup, S.S.; Paranthaman, M.P.; Goyal, A.; Specht, E.D.; Lee, D.F.; Kroeger, D.M.; Beach, D.B. Epitaxial thin film growth of lanthanum and neodymium-aluminate films on foil-textured nickel using a sol-gel method, *J. Am. Cera. Soc.* **1998***, 81*, 3019-3021.

300. Bhattacharya, R.N.; Blaugher, R.D.; Ren, Z.F.; Li, W.; Wang, J.H.; Paranthaman, M.P.; Verebelyi, D.T.; Christen, D.K. Superconducting epitaxial (TlBi)(0.9)Sr1.6Ba0.4Ca2Cu3Ag0.2Ox film from an electrodeposited precursor, *Electrochem. Solid-State Lett.* **1998,** *1,* 165-167.

301. Goyal, A.; List, F.A.; Mathis, J.; Paranthaman, M.P.; Specht, E.D.; Norton, D.P.; Park, C.; Lee, D.F.; Kroeger, D.M.; Christen, D.K.; Budai, J.D.; Martin, P.M. High critical current density YBa2Cu3Ox tapes using the RABiTs approach, *J. Supercond.* **1998***, 11*, 481-487.

302. Yang, C.Y.; Babcock, S.E.; Goyal, A.; Paranthaman, M.P.; List, F.A.; Norton, D.P.; Kroeger, D.M.; Ichinose, A. Microstructure of electron-beam-evaporated epitaxial yttria-stabilized zirconia/CeO2 bilayers on biaxially textured Ni tape, *Physica C* **1998***, 307*, 87-98.

303. Specht, E.D.; Goyal, A.; Lee, D.F.; List, F.A.; Kroeger, D.M.; Paranthaman, M.P.; Williams, R.K.; Christen, D.K. Cube-textured nickel substrates for high-temperature superconductors, *Supercond. Sci. Technol.* **1998***, 11*, 945-949.

304. Park, C.; Norton, D.P.; Budai, J.D.; Christen, D.K.; Verebelyi, D.; Feenstra, R.; Lee, D.F.; Goyal, A.; Kroeger, D.M.; Paranthaman, M.P. Bend strain tolerance of critical currents for YBa2Cu3O7 films deposited on rolled-textured, (001)Ni, *App. Phys. Lett.* **1998***, 73,* 1904-1906.

305. Ren, Z.F.; Li, W.; Wang, D.Z.; Lao, J.Y.; Wang, J.H.; Paranthaman, M.P.; Verebelyi, D.T.; Christen, D.K. Growth and characterization of superconducting films Tl0.78Bi0.22Sr1.6Ba0.4Ca2Cu3O9 on CeO2-buffered single crystal YSZ, *Physica C* **1998***, 306,* 149-153.

306. Bhattacharya, R.N.; Blaugher, R.D.; Ren, Z.F.; Li, W.; Wang, J.H.; Paranthaman, M.P.; Verebelyi, D.T.; Christen, D.K. Superconducting thallium oxide films by the electrodeposition method, *Physica C* **1998***, 304*, 55-65.

307. Carlson, C.M.; Price, J.C.; Parilla, P.A.; Ginley, D.S.; Niles, D.; Blaugher, R.D.; Goyal, A.; Paranthaman, M.P.; Kroeger, D.M.; Christen, D.K. Laser-ablated epitaxial LaAlO3 buffer layers on biaxially textured Ni substrates for superconducting tapes, *Physica C* **1998***, 304,* 82-88.

308. List, F.A.; Goyal, A.; Paranthaman, M.P.; Norton, D.P.; Specht, E.D.; Lee, D.F.; Kroeger, D.M. High J(c) YBCO films on biaxially textured Ni with oxide buffer layers deposited using electron beam evaporation and sputtering, *Physica C* **1998***, 302,* 87-92.

309. Ren, Z.F.; Lao, J.Y.; Guo, L.P.; Wang, J.H.; Budai, J.D.; Christen, D.K.; Goyal, A.; Paranthaman, M.P.; Specht, E.D.; Thompson, J.R. Epitaxial film growth of Tl0.78Bi0.22Sr1.6Ba0.4Ca2Cu3O9 on rolling assisted biaxially textured nickel substrates with YSZ and CeO2 buffer layers, *J. Supercond.* **1998***, 11,* 159-161.

310. Bhattacharya, R.N.; Blaugher, R.D.; Natarajan, A.; Carlson, C.M.; Parilla, P.A.; Ginley, D.S.; Paranthaman, M.P.; Goyal, A.; Kroeger, D.M. Thick-film processing for Tl-oxide wire and tape, *J. Supercond.* **1998***, 11,* 173-180.

311. Paranthaman, M.P.; Goyal, A.; List, F.A.; Specht, E.D.; Lee, D.F.; Martin, P.M.; He, Q.; Christen, D.K.; Norton, D.P.; Budai, J.D.; Kroeger, D.M. Growth of Biaxially Textured Buffer Layers on Rolled-Ni Substrates by Electron Beam Evaporation, *Physica C,* **1997***, 275*, 266-272.

312. Paranthaman, M.P.; David, K.A.; Lindemer, T.B. Phase Equilibria of the MgO-Cu2O-CuO System, *Mater. Res. Bull.* **1997***, 32*, 165-173.

313. Thompson, J.R.; Krusin-Elbaum, L.; Christen, D.K.; Song, K.J.; Paranthaman, M.P.; Ullmann, J.L.; Wu, J.Z.; Ren, Z.F.; Tkaczyk, J.E.; DeLuca, J.A. Generic Enhancements of the Highest-Tc Superconductors With GeV Protons, *Appl. Phys. Lett.* **1997***, 71*, 536-538.

314. Kerchner, H.R.; Norton, D.P.; Goyal, A.; Budai, J.D.; Christen, D.K.; Kroeger, D.M.; Specht, E.D.; He, Q.; Paranthaman, M.P.; Lee, D.F.; Sales, B.C.; List, F.A.; Feenstra, R. Alternating Current Losses in Biaxially Textured YBa2Cu3O7-δ Films Deposited on Ni Tapes, *Appl. Phys. Lett.* **1997***, 96* (2), 685-688.

315. Goyal, A.; Norton, D.P.; Kroeger, D.M.; Christen, D.K.; Paranthaman, M.P.; Specht, E.J.; Budai, J.D.; He, Q.; Saffian, B.; List, F.A.; Lee, D.F.; Hatfield, E.; Klabunde, C.E.; Martin, P.M. Conductors with Controlled Grain Boundaries: An Approach to the Next Generation, High Temperature Superconducting Wire, *J. Mater. Res.* **1997***, 12* (11), 2924-2940.

316. Maya, L.; Paranthaman, M.P.; List, F.A.; Warmack, R.J. Sputtered Cu/Co Films for Giant Magnetoresistance: Effect of Plasma Gas and Annealing Treatment, *J. Vac. Sci. Technol. A* **1997***, 15*, 1-6.

317. Shoup, S.S.; Paranthaman, M.P.; Goyal, A.; Specht, E.D.; Lee, D.F.; Kroeger, D.M.; Beach, D.B. Epitaxial Thin Film Growth of lanthanum and neodymium aluminate films on roll-textured nickel using a sol-gel method, *J. Amer. Ceram. Soc.* **1997***, 81*, 3019-3021.

318. Paranthaman, M.P.; Shoup, S.S.; Beach, D.B.; Williams, R.K.; Specht, E.D. Epitaxial Growth of BaZrO3 Films on Single Crystal Oxide Substrates Using Sol-gel Alkoxide Precursors, *Mater. Res. Bull.* **1997***, 32*, 1697-1704.

319. Goyal, A.; Norton, D.P.; Christen, D.K.; Specht, E.D.; Paranthaman, M.P.; Kroeger, D.M.; Budai, J.D.; He, Q.; List, F.A.; Feenstra, R.; Kerchner, H.R.; Lee, D.F.; Hatfield, E.; Martin, P.M.; Mathis, J.; Park, C. Epitaxial Superconductors on Rolling-Assisted-Biaxially-Textured-Substrates (RABiTS): A Route Towards High Critical Current Density Wire, *Appl. Supercond.* **1997**.

320. Shoup, S.S.; Paranthaman, M.P.; Beach, D.B.; Specht, E.D.; Williams, R.K. Sol-gel Synthesis of LaAlO3; Epitaxial Growth of LaAlO3 Thin Films on SrTiO3 (100), *J. Mater. Res.* **1997***, 12*, 1017-1021.

321. Paranthaman, M.P.; List, F.A.; Goyal, A.; Specht, E.D.; Vallet, C.E.; Kroeger, D.M.; Christen, D.K. Growth of TlBa2Ca2Cu3O9-y Superconducting Films with Local Biaxial Alignment Extending up to 5 mm on Ag Substrates using a Spray Pyrolysis Technique, *J. Mater. Res.* **1997***, 12*, 619-623.

322. He, Q.; Christen, D.K.; Budai, J.D.; Specht, E.D.; Lee, D.F.; Goyal, A.; Norton, D.P.; Paranthaman, M.P.; List, F.A.; Kroeger, D.M. Deposition of Biaxially-Oriented Metal and Oxide

Buffer-Layer Films on Textured Ni Tapes: New Substrates for High-Current, High-Temperature Superconductors, *Physica C* **1997***, 275*, 155-161.

323. Goyal, A.; Norton, D.P.; Budai, J.D.; Paranthaman, M.P.; Specht, E.D.; Kroeger, D.M.; Christen, D.K.; He, Q.; Saffian, B.; List, F.A.; Lee, D.F.; Martin, P.M.; Klabunde, C.E.; Hatfield, E.; Sikka, V.K. Fabrication of Long Range, Biaxially Textured, High Temperature Superconducting Tape on Rolled Ni Substrates, *Appl. Phys. Lett.* **1996***, 69*, 1795-1797.

324. Norton, D.P.; Goyal, A.; Budai, J.D.; Christen, D.K.; Kroeger, D.M.; Specht, E.D.; He, Q.; Saffian, B.; Paranthaman, M.P.; Klabunde, C.E.; Lee, D.F.; Sales, B.C.; List, F.A. Epitaxial YBa2Cu3O7 on Biaxially-Textured (001) Ni: An Approach to High Critical Current Density Superconducting Tapes, *Science* **1996***, 274*, 755-757.

325. Maya, L.; Paranthaman, M.P.; Thundat, T.; Bauer, M.L. Gold Oxide as Precursor to Gold/Silica Nanocomposites, *J. Vac. Sci. Technol. B* **1996***, 14*, 15-21.

326. Maya, L.; Paranthaman, M.P.; Thompson, J.R.; Stevenson, R.J. Ferromagnetic Nanocomposite Films of Cobalt in a Ceramic Matrix Formed by Thermal Decomposition of Cobalt Nitride, CoN, *J. Appl. Phys.* **1996***, 79*, 7905.

327. Paranthaman, M.P.; Chakoumakos, B.C. Crystal Chemistry of Hg1Ba2Can-1CunO2n+2+□ (n=1,2,3,4) Superconductors, *J. Solid State Chem.* **1996***, 122*, 221-230.

328. Thompson, J.R.; Ossandon, J.G.; Christen, D.K.; Paranthaman, M.P. Comparative Study of the Characteristic Length Scales and Fields of Hg-Based High-Tc Superconductors, *Phys. Rev. B* **1996***, 54*, 7505-7511.

329. Christen, D.K. Norton, D.P.; Goyal, A.; Budai, J.D.; He,Q.; Klabunde, C.E.; Kroeger, D.M.; Paranthaman, M.P.; Saffian, B.; Specht, E.D. Biaxially Oriented Metallic Tape Substrates for High-Temperature Superconductors, *Czech. J. Physics* **1996***, 46*, 1531-1532.

330. Yelon, W.B.; Hu, Z.; Paranthaman, M.P.; James, W.J.; Menon, L.; Malik, S.K. Neutron Diffraction Studies on Superconducting YNi2B2C at Various Temperatures, *Physica B* **1996***, 223 & 224*, 105-108.

331. Cook, L.P.; Wong-Ng, W.; Paranthaman, M.P. Melting and Vaporization of the 1223 Phase in the System (Tl-Pb-Ba-Sr-Ca-Cu-O), *J. Res. Natl. Inst. Stan.* **1996***, 101*, 675-689.

332. Thompson, J.R.; Ossandon, J.G.; Christen, D.K.; Paranthaman, M.P.; Specht, E.D.; Kim, Y.C. Equilibrium Magnetic Studies of Hg-based High-Tc Superconductors, *Czech. J. Physics* **1996***, 46*, 1599-1600.

333. Subramaniam, C.K.; Paranthaman, M.P.; Kaiser, A.B. Thermoelectric Power and Resistivity Measurements on Oxygen-annealed HgBa2Ca2Cu3O8+δ Superconductors, *Phys. Rev. B* **1995***, 51*, 1330-1333.

334. Paranthaman, M.P.; Beach, D.B. Growth of Highly-Oriented TlBa2Ca2Cu3O9-y Superconducting Films on Ag Substrates Using a Dip-Coated Barium Calcium Copper Oxide Sol-gel Precursor, *J. Amer. Ceram., Soc.* **1995***, 78*, 2551-2553.

335. Kim, Y.C.; Thompson, J.R.; Christen, D.K.; Sun, Y.R.; Paranthaman, M.P.; Specht, E.D. Surface Barriers, Irreversibility Line, and Pancake Vortices in Aligned HgBa2Ca2Cu3O8+δ Superconductor, *Phys. Rev. B* **1995***, 52*, 1490-1493.

336. Kim,Y.C.; Thompson, J.R.; Ossandon, J.G.; Christen, D.K.; Paranthaman, M.P. Equilibrium Superconducting Properties of Grain-Aligned HgBa2Ca2Cu3O8+δ, *Phys. Rev. B* **1995***, 51*, 1767-1772.

337. Kim,Y.C.; Thompson, J.R.; Christen, D.K.; Paranthaman, M.P.; Specht, E.D. Enhanced Irreversibility Field and Current Stabilization by Pb Substitution in Aligned Tl-1223 High-Tc Superconductor, *Physica C* **1995***, 253*, 357-366.

338. Paranthaman, M.P.; Heatherly, D.E.; Martin, P.M. Phase Evolution Studies on (Tl,Pb)(Sr1.6Ba0.4)Ca2Cu3Oy Superconductors, *Mater. Res. Bull.* **1995***, 30*, 1243-1248.

339. He, Q.; Christen, D.K.; Klabunde, C.E.; Tkaczyk, J.E.; Lay, K.W.; Paranthaman, M.P.; Thompson, J.R.; Goyal, A.; Pedraza, A.J.; Kroeger, D.M. High-current Superconducting TlBa2Ca2Cu3Oy Thick Films on Polycrystalline Ag by Spin Coating, *Appl. Phys. Lett.* **1995***, 67*, 294-296.

340. Kaiser, B.; Subramaniam, C.K.; Ruck, B.; Paranthaman, M.P. Systematic Thermopower Behavior in Superconductors, *J. Synthetic Metals* **1995***, 71*, 1583-1584.

341. Sun, Y.R.; Thompson, J.R.; Schwartz, J.; Christen, D.K.; Kim, Y.C.; Paranthaman, M.P. Surface Barrier in Hg-Based Polycrystalline Superconductors, *Phys. Rev. B* **1995***, 51*, 581-588.

342. Bhattacharya, R.N.; Paranthaman, M.P. Alternating-current Electrodeposition (Metafuse) Process for forming Thallium-Oxide Superconductors, *Physica C* **1995***, 251*, 105-109.

343. Hur, N.H.; Chakoumakos, B.C.; Paranthaman, M.P.; Thompson, J.R.; Christen, D.K. Structure and Superconducting Properties of (Tl0.8Bi0.2)(Sr1.6Ba0.4)Ca2Cu3O9-δ, *Physica C* **1995***, 253*, 109-114.

344. Hur, N.H.; Paranthaman, M.P.; Thompson, J.R.; Christen, D.K. Superconductivity in the Indium-Doped Tl-1223 Phase: (Tl0.8In0.2)(Sr0.8Ba0.2)2Ca2Cu3O9-δ, *Physica C* **1995***, 253*, 109.

345. Paranthaman, M.P.; Goyal, A.; Heatherly, D.E.; Kroeger, D.M. Formation of Anisotropic Tl-1212, Tl-2212, Tl-1223 and Tl-2223 Particles using Aerosol Flow Reacted Powders. *IEEE Trans. on Appl. Supercond.* **1995***, 5*, 1490-1493.

346. Goyal, A.; Paranthaman, M.P.; He, Q.; List, F.A.; Specht, E.D.; Christen, D.K.; Kroeger, D.M.; Tkacyzk, J.E.; Haldar, P. Fabrication, Processing and Properties of Tl-1223 Conductors, *IEEE Trans. on Appl. Supercond.* **1995***, 5*, 1405-1408.

347. Blackstead, H.A.; Pulling, D.B.; Paranthaman, M.P.; Brynestad, J. Field and Temperature Dependent Surface Resistance of Superconducting Polycrystalline Multiple-Phase Hg-Ba-Ca-Cu-O: Evidence for "Dirty-Limit Behavior, *Phys. Rev. B* **1995***, 51*, 3783-3790.

348. Paranthaman, M.P.; Foldeaki, M.; Balzar, D.; Ledbetter, H.; Nelson, A.J.; Hermann, A.M. Enhanced Flux Pinning via Chemical Substitution in Bulk Superconducting Tl-2212, *Supercond. Sci. & Technol.,* **1994***, 7*, 227-233.

349. Paranthaman, M.P.; Foldeaki, M.; Tello, R.; Hermann, A.M. Synthesis and Magnetic Characterization of Tl,Pb-1223 and Tl-2212 Bulk Superconductors, *Physica C* **1994***, 219*, 413-419.

350. Gopinath, C.S.; Subramanian, S.; Paranthaman, M.P.; Hermann, A.M. Valence Charge Fluctuations in Tl2-x-zBa2Ca2+xCu3O10-y System, *J. Solid State Chem.* **1994***, 109*, 211-218.

351. Paranthaman, M.P.; Thompson, J.R.; Sun, Y.R.; Brynestad, J.; Kroeger, D.M. Evidence for Phase Stability and Weak Links in Polycrystalline HgBa2CuO4+δ, *Appl. Supercond.* **1994***, 2*, 359-365.

352. Paranthaman, M.P. Single Step Synthesis of Bulk HgBa2Ca2Cu3O8+δ Superconductors, *Physica C* **1994***, 222*, 7-12.

353. Subramaniam, C.K.; Paranthaman, M.P.; Kaiser, A.B. Thermoelectric Power and Resistivity of Bulk HgBa2CuO4+y Superconductors and the Effects of Annealing, *Physica C* **1994***, 222*, 47-51.

354. Sun,Y.R.; Thompson, J.R.; Kerschner, H.R.; Christen, D.K.; Paranthaman, M.P.; Brynestad, J. Strong Surface Pinning Effects in Polycrystalline Hg1Ba2Cu1O4+□ Superconductor, *Phys. Rev. B* **1994***, 50*, 3330-3336.

355. Chakoumakos, B.C.; Paranthaman, M.P. Neutron Powder Diffraction Study of the Superconducting Quaternary Intermetallic Compound YNi2B2C, *Physica C* **1994***, 227*, 143-150.

356. Hoffman, W.; Breitzke, H.; Baenitz, M.; Luders, K.; Buntkowsky, G.; Limbach, H.H.; Antipov, E.V.; Gippius, A.A.; Loebich, O.; Khan, H.R.; Paranthaman, M.P.; Thompson, J.R. Application of 199Hg Solid State NMR to Hg-based HTSC. *Physica C* **1994***, 227*, 225-229.

357. Hoffmann, W.; Kraus, M.; Luders, K.; Buntkowsky, G.; Limbach, H.H.; Antipov, E.V.; Gippius, A.A.; Loebich, O.; Khan, H.R.; Paranthaman, M.P.; Thompson, J.R. 199Hg-Solid State NMR and Susceptibility Studies of Mercury-Based HTSC, *Physica C* **1994***, 235-240*, 1671-1672.

358. Hoffmann, W.; Breitzke, H.; Simmons, C.T.; Luders, K.; Buntkowsky, G.; Limbach, H.H.; Antipov, E.V.; Gippius, A.A.; Loebich, O.; Khan, H.R.; Paranthaman, M.P.; Thompson, J.R. 199Hg and 63,65Cu NMR Studies of Mercury Based High-Tc Superconductors, *Appl. Mag. Res.* **1994***, 8*, 57-65.

359. Foldeaki, M.; Ledbetter, H.; Paranthaman, M.P.; Duan, H.M.; Hermann, A.M. Asymmetry Between Flux Penetration and Flux Expulsion in Tl-2212 Superconductors, *J. Supercond.* **1993***, 6*, 185-189.

360. Paranthaman, M.P.; Foldeaki, M.; Hermann, A.M. Effect of Site-Selective Substitution in Bulk Superconducting Tl2Ba2CaCu2O8, *J. Electronic Mater.* **1993***, 22*, 1205-1209.

361. Hermann, M.; Duan, H.M.; Kiehl, W.; Paranthaman, M.P. Single Crystal Studies of the Pairing Mechanism in Tl2Ba2CuO6 Superconductors, *Physica C* **1993***, 209*, 199-202.

362. Gopinath, S.; Subramanian, S.; Paranthaman, M.P.; Hermann, A.M. Valence Band Electronic Structure of Tl2-x-zBa2Ca2+xCu3O10-y System, *Physica C* **1993***, 214*, 153-158.

363. Gopinath, S.; Subramanian, S.; Paranthaman, M.P.; Hermann, A.M. Comparative Photoemission Studies of Tl2Ba2Can-1CunO2n+4 (n=1,2 and 3), *Phys. Rev. B* **1993***, 48*, 15999-16005.

364. Paranthaman, M.P.; Thompson, J.R.; Sun, Y.R.; Brynestad, J. Synthesis and Magnetic Characterization of the High Tc Superconducting Compound HgBa2CuO4+□, *Physica C* **1993***, 213*, 271-275.

365. Thompson, J.R.; Ossandon, J.G.; Christen, D.K.; Chakoumakos, B.C.; Sun, Y.R.; Paranthaman, M.P.; Brynestad, J. Vortex Fluctuations, Magnetic Penetration Depth, and Hc2 in Hg- and Tl- Based High-Tc Superconductors, *Phys. Rev. B* **1993***, 48*, 14031-14034.

366. Paranthaman, M.P.; Steinfink, H. Preparation and Magnetic Properties of Cu6O8InCl and Li1.23Cu6O8InCl, *J. Solid State Chem.* **1992***, 96*, 243-246.

367. Paranthaman, M.P.; Manthiram, A.; Goodenough, J.B. Hole Concentration and Tc in Tl2-yBa2Ca1-zYzCu2O8-x, *J. Solid State Chem.* **1992***, 98*, 343-349.

368. Paranthaman, M.P.; Manthiram, A.; Goodenough, J.B. Hole Concentration and Tc in Tl2-yBa2-zLazCuO6-x, *J. Mater. Chem.* **1992***, 2*, 317-321.

369. Manthiram, A.; Paranthaman, M.P.; Goodenough, J.B. On the Determination of Hole Concentration in Thallium Cuprate Superconductors, *J. Solid State Chem.* **1992***, 96*, 464-467.

370. Paranthaman, M.P.; Foldeaki, M.; Hermann, A.M. Hole Concentration and Critical Temperature in Tl2-x-yBa2Ca2+xCu3O10-z, *Physica C* **1992***, 192*, 161-165.

371. Paranthaman, M.P.; Foldeaki, M.; Naziripour, A.; Hermann, A.M. Hole Concentration and Tc in the Tl2-x-zBa2Ca2+xCu3O10-y System, *Mater. Res. Soc. Symp. Proc.***1992***, 275*, 41-46.

372. Goodenough, J.B.; Manthiram, A.; Paranthaman, M.P.; Zhen, Y.S. Fast Oxide-Ion Conduction in Intergrowth Structures Solid State Ionics, **1992**, *52*,105-109.

373. Goodenough, J. B.; Manthiram, A.; Paranthaman, M.P.; Zhen, Y.S. Oxide-Ion Electrolytes, *Mater. Sci. and Eng. B* **1992***, 12*, 357-364.

374. Paranthaman, M.P.; Manthiram, A.; Goodenough, J.B. Chemical Characterization Of The Thallium Cuprate Superconductors, *High-Temperature Superconductors:Materials Aspects* **1991***, 1-2,* 405-410.

375. Paranthaman, M.P.; Manthiram, A.; Goodenough, J.B. Chemical Methods to Identify the Origin of Oxidation in the Thallium Cuprate Superconductors, *J. Solid State Chem.* **1990***, 87*, 479-482.

376. Manthiram, M.; Paranthaman, M.P.; Goodenough, J.B. Properties of the Chemically Characterized Thallium Cuprate Superconductors, *Physica C* **1990***, 171*, 135-146.

377. Goodenough, J.B.; Manoharan,R.; Paranthaman, M.P. Surface Protonation and Electrochemical Activity of Oxides in Aqueous Solution, *J. Amer. Chem. Soc.* **1990***, 112*, 2076-2082.

378. Paranthaman, M.P.; Aravamudan, G.; Rao, G.V.S. Photoelectrochemical Studies on Tetrahedral Mo-Cluster Compounds, GaMo4S8 and ZnMo2Re2S8, *Mater. Res. Bull.* **1989***, 24,* 931-938.

379. Manoharan, R.; Paranthaman, M.P.; Goodenough, J.B. Electrocatalysis on Pb2Ir2-xPbxO7-y, *Eur. J. Solid State Inorg. Chem.* **1989***, 26*, 155-174.

380. Paranthaman, M.P.; Aravamudan, G.; Rao, G.V.S. Photoelectrochemical Properties of Metal-Cluster Oxide Compounds A2Mo3O8 (A=Zn,Mg,Fe) and (LiY)Mo3O8, *Bull. Mater. Sci. (India)* **1988***, 10*, 313-322.

381. Radhakrishnan, T.S.; Kalavathi, S.; Sastry, V.S.; Chandrasekaran, K.; Venkateswara, C.R.; Paranthaman, M.P.; Varadaraju, U.V.; Rao, G.V.S. Superconductivity Studies on Pure and F-containing Ln-M-Cu-O (Ln=La, Y; M=Sr, Ba) System, *Jpn. J. Appl. Phys*. **1987**, *26*, 1079-1080.

382. Varadaraju, U.V.; Natarajan, S.; Sampath Kumar, T.S.; Paranthaman, M.P.; Rao, G.V.S.; Raju, N.P.; Srinivasan, R. Effect of Chemical Substitution on the High-Tc Behavior of YBa2Cu3O7, *Physica B* **1987***, 148*, 417-418.

383. Paranthaman, M.P.; Aravamudan, G.; Rao, G.V.S. PEC Properties of Metal-Cluster Oxide Compounds, A2Mo3O8 and (LiY)Mo3O8, *Izv. Sib. Otd. Akad. Nauk SSSR (Siberian Academy of Sciences, Novosibirsk, USSR) Ser. Khim.* **1987***, 6*, 34-40.

384. Paranthaman, M.P.; Aruchamy, A.; Aravamudan, G.; Rao, G.V.S. Photoelectrochemical Studies on the Mixed Oxides, SrTiO3, Sr2TiO4 and Sr3Ti2O7, *Mater. Chem. Phys.* **1986***, 14*, 349-365.

385. Paranthaman, M.P.; Aravamudan, G.; Rao, G.V.S. Photoelectrochemical Studies on Metal-Cluster Oxide Compound Zn2Mo3O8, *Ind. J. Technol.* **1986***, 24*, 399-401.

III. Book Chapters/Proceedings (58)

1. Xiu, Faxian, Xu, Jun, Bridges, Craig, A., Joshi, Pooran, and **Paranthaman, M. P**., 'ZnO Doping and Defect Engineering,' as a book chapter in Semiconductor Materials for Solar Photovoltaic Cells, Edited by M. P. Paranthaman, R. Bhattacharya and W. Wong, 2015.
2. **Paranthaman, M. Parans**, Liu, H., Sun, X.-G., Dai, S., and Brown, G.M., 'Aluminum-ion batteries for medium- and large-scale energy storage,' published as a book chapter 13 in a book titled, 'Advances in Batteries for Medium and Large-Scale Energy Storage, Elsevier, 2014.
3. **Paranthaman, M.P**., Aytug, T., Stan, L., Jia, Q., and Cantoni, C., 'YBCO-Coated Conductors,' published as a book chapter in a Superconductivity book edited by P. Seidal, pp. 355-365, Wiley-VCH, 2015.
4. **M. Parans Paranthaman**, "Chemical Solution Deposition Based Oxide Buffers and YBCO Coated Conductors, Published as a book chapter in a book titled, "Applications of High-Tc Superconductivity," pp. 193-200, Edited by Adir Moyses Luiz, Intech Publications, Croatia, Published June 2011 (ISBN 978-953-307-308-8).
5. **M. Parans Paranthaman**, "*YBCO Coated Conductors*," published as a book chapter in a book entitled, "High Temperature Superconductors," edited by R.N. Bhattacharya, and M. P. Paranthaman, published by -VCH Verlag GmbH & Co. KGaA, Weinheim (2010).
6. **M. Parans Paranthaman**, "*Superconductor Wires*," 2006 McGraw-Hill Yearbook of Science & Technology, pp. 319-322 (2006).
7. T. Aytug, D. K. Christen, **M. Paranthaman**, A. A. Gapud, H. M. Christen, S. Kang, M. Varela, K. J. Leonard, A. Goyal, P. M. Martin, J. R. Thompson, A. O. Ijaduola, R. Meng, I. Rusakova, T. H. Johansen, C. W. Chu, and S. W. Chan, "Enhancement of Flux Pinning in $YBa_2Cu_3O_{7-\delta}$ Films via Nano-Scale Modifications of Substrate Surfaces," Book chapter in *Flux Pinning and AC Loss Studies on YBCO Coated Conductors*, Edited by M. Parans Paranthaman, and Venkat Selvamanickam, Nova Science Publishers Inc., New York, pp. 237-262 (2007).
8. **M. Parans Paranthaman**, and Venkat Selvamanickam, "Flux Pinning and AC Loss in Second Generation High Temperature Superconductor Wires," Book chapter in *Flux Pinning and AC Loss Studies on YBCO Coated Conductors*, Edited by M. Parans Paranthaman, and Venkat

Selvamanickam, Nova Science Publishers Inc., New York, pp. 3-10 (2007).

9. Bhuiyan, M.S.; **Paranthaman, M.P**.; Beach, D.; Heatherly, L.; Goyal, A.; Payzant, E.A. Epitaxial Growth of Eu3NbO7 buffer layers on Biaxially Textured Ni-W Substrates, *Ceramic Transactions* (Proc. of the 106th Annual Meeting of the American Ceramic Society, Indianapolis, Indiana, 2004), Edited by M. Parans Paranthaman et al., High-Temperature Superconductor Materials, Devices, and Applications, 2005, Vol. 160, pp. 35-41.
10. **Paranthaman, M.P**, "Non-fluorine Based Bulk Solution Techniques to Grow Superconducting $YBa_2Cu_3O_{7-\delta}$ Films – A Review," Chapter 12, pp. 195-214 in a book titled, Next Generation HTS Conductors," Edited by Amit Goyal, Kluwer Academic Publishers, Massachusetts, USA (**2004**).
11. **Paranthaman, M.P**.; Aytug, T.; Zhai, H.Y.; Gapud, A.A.; Martin, P.M.; Leonard, K.J.; Goyal, A.; Christen, D.K. Perovskite Type Buffers for YBCO Coated Conductors, *Ceramic Transactions* (Proc. of the 106th Annual Meeting of the American Ceramic Society, Indianapolis, Indiana, 2004), Edited by Winnie Wong-Ng et al., Synthesis, Properties, and Crystal Chemistry of Perovskite-Based Materials, Vol. 169, 2005, pp. 49-58.
12. **Paranthaman, M.P**.; Sathyamurthy, S.; Aytug, T.; Leonard, K.; Goyal, A.; Zhai, H.Y.; Kroeger, D.M.; Christen, D.K.; Li, X.; Verebelyi, D.T.; Schoop, U.; Thieme, C.; Kodenkandath, T.; Zhang, W.; Rupich, M.W. Buffer layer R & D for YBCO coated conductor composite wires, *AIP Conference Proceedings* (Proc. of the 2003 Cryogenic Engineering Conference/International Cryogenic Materials Conference (CEC/ICMC)), No. 711, Part 2, 2004**,** pp. 645-652.
13. **Paranthaman, M.P**.; Aytug, T.; Zhai, H.Y.; Christen, H.M.; Christen, D.K.; Goyal, A.; Heatherly, L; Kroeger, D.M. Development of low-cost alternative buffer layer architectures for YBCO coated conductors, *Ceramic Transactions* (Proc. of the 105th Annual Meeting of the American Ceramic Society, Nashville, Tennessee, 2003), Edited by Ruling Meng et al., Fabrication of Long-Length and Bulk High-Temperature Superconductors, Vol. 149, 2004**,** pp. 33-41.
14. Bhuiyan, M.S.; **Paranthaman, M.P**.; Sathyamurthy, S.; Aytug, T.; Kang, S.; Lee, D.F.; Goyal, A.; Payzant, E.A.; Salama, K. Growth of epitaxial Y2O3 film on biaxially textured Ni-W substrates, *Frontiers in Superconducting Materials* - New Materials and Applications Symposium (Mater. Res. Soc. Symposium Proceedings Vol. EXS-3), 2004, pp. 57-59.
15. Sathyamurthy, S., **M. Paranthaman**, H.Y. Zhai, S. Kang, C. Cantoni, S. Cook, L. Heatherly, A. Goyal, H.M. Christen, M.S. Bhuiyan, and K. Salama, "Solution Buffer Layers for YBCO Coated Conductors," Ceramic Transactions (Proc. of the 105th Annual Meeting of the American Ceramic Society, Nashville, Tennessee, 2003), Edited by Ruling Meng et al., Fabrication of Long-Length and Bulk High-Temperature Superconductors, Vol. 149, pp. 3-8, 2004.
16. H.Y. Zhai, H.M. Christen, **M.P. Paranthaman**, C. Cantoni, L. Zhang, C.W. White, D.K. Christen, D.H. Lowndes, "Progress and Perspectives in Magnesium Diboride Films," Chapter 7, pp.207-236 in a book titled, "Studies of High Temperature Superconductors (Advances in Research and Applications) Layered Cuprates and More on Magnesium Diboride," Vol. 44, Edited by A. Narlikar, Nova Sci. Pub., New York (**2003**).
17. **M. Paranthaman**, D. K. Christen, H. M. Christen, J. R. Thompson, C. Cantoni, H. Y. Zhai and R. Jin, Superconducting MgB_2 Films with Enhanced Critical Current Densities and Irreversibility Fields, Published as a book chapter in Volume 38: "Studies of High Temperature Superconductors" Edited by A. Narlikar, Nova Science Publishers Inc., Commack, New York, 475-484, (**2002**).
18. Xu, Y.L.; Shi, D.; Goyal, A.; **Paranthaman, M.P**.; Rutter, N.A.; Martin, P.M.; Kroeger, D.M. YBa2Cu3O7-delta films through a fluorine free TMAP MOD approach, *Ceram. Trans.; Processing of High*-Temperature Superconductors Book Series*,* Editor(s): Goyal A.; Wong Ng W.; Murakami M.; Driscoll J., Vol. 140, 2003, pp. 129-136.
19. Cheggour, N.; Ekin, J.W.; Clickner, C.C.; Feenstra, R.; Goyal, A.; **Paranthaman, M.P**.; Rutter, N. Effect of transverse compressive stress on transport critical current density of Y-Ba-Cu-O coated Ni and Ni-W rabits tapes, *Ceram. Trans*.; Processing of High-Temperature Superconductors Book Series, Editor(s): Goyal A.; Wong Ng W.; Murakami M.; Driscoll J., Vol. 140, 2003, pp. 157-170.
20. **Paranthaman, M.P**.; Sathyamurthy, S.; Zhai, H.Y.; Christen, H.M.; Kang, S.; Goyal, A. Demonstration of high current density YBCO films on all solution buffers, *Ceram. Trans*.; Processing

of High-Temperature Superconductors Book Series, Editor(s): Goyal A.; Wong Ng W.; Murakami M.; Driscoll J., Vol. 140, 2003, pp. 249-254.

21. Cheggour, N.; Ekin, J.W.; Clickner, C.C.; Feenstra, R.; Goyal, A.; **Paranthaman, M.P**.; Lee, D.F.; Kroeger, D.M.; Christen, D.K. Transverse Compressive Stress, Fatigue, and Magnetic Substrate Effects on the Critical Current Density of Y-Ba-Cu-O Coated RABiTS Tapes, *Advances in Cryogenic Engineering*: Proc. of the Intl. Cryogenic Materials Conf. – ICMC, Vol. 48, edited by B. Balachandran, et al., American Institute of Physics, 2002, pp.461-468.
22. Aytug, T.; **Paranthaman, M.P**.; Goyal, A.; Gapud, A.; Rutter, N.; Zhai, H.Y.; Christen, D.K. Development of Conductive La0.7Sr0.3MnO3 Buffer Layers for Cu-Based RABiTS, *Ceramic Transactions* (Proc. of the 105th Annual Meeting of the American Ceramic Society, Nashville, Tennessee, 2003), Edited by Ruling Meng et al., Fabrication of Long-Length and Bulk High-Temperature Superconductors, Vol. 149, 2004, pp. 59-62.
23. Annavarapu, S.; Nguyen, N.; Cui, S.; Schoop, U.; Thieme, C.; Rupich, M.W.; Kodenkandath, T.; Verebelyi, D.; Zhang, W.; Li, X.; Li, Q.; **Paranthaman, M.P**.; Goyal, A.; Cantoni, C.; Kowalewski, M.; List, F.A. *Materials Research Society Symposium Proceedings*, Volume 689, Materials for High-Temperature Superconductor Technologies, Symposium held November 26-29, 2001, Boston MA, Materials Research Society, Pennsylvania, 2002, pp.231-237.
24. **Paranthaman, M. P**.; Aytug, T.; Zhai, H.Y.; Sathyamurthy, S.; Christen, H.M.; Martin, P.M.; Christen, D.K.; Erickson, R.E.; Thomas, C.L. Single Buffer Layer Technology for YBCO Coated Conductors, *Materials Research Society Symposium Proceedings* Volume 689, Materials for High-Temperature Superconductor Technologies, Symposium held November 26-29, 2001, Boston MA, Materials Research Society, Pennsylvania, 2002, pp. 323-328.
25. Christen, D.K.; Cantoni, C.; Thompson, J.R.; **Paranthaman, M.P**.; Chisholm, M.F.; Kerchner, H.R.; Christen, H.M., Superconducting Properties of High-JcMgB2 Coatings, *Materials Research Society Symposium Proceedings*, Volume 689, Materials for High-Temperature Superconductor Technologies, Symposium held November 26-29, 2001, Boston MA, Materials Research Society, Pennsylvania, 2002, pp. 25-31.
26. Aytug, T.; **Paranthaman, M.P**.; Sathyamurthy, S.; Kang, B.W.; Beach, D.B.; Vallet, C. E.; Specht, E.D.; Lee, D.F.; Feenstra, R.; Goyal, A.; Kroeger, D.M.; Leonard, K.J.; Martin, P.M.; Christen, D.K. High-Jc YBCO Coatings on Reel-to-Reel Dip-Coated Gd2O3 Seed Buffer Layers Epitaxially Fabricated on Biaxially Textured Ni and Ni-(3at%W-1.7at%Fe) Alloy Tape *Materials Research Society Symposium Proceedings* Volume 689, Materials for High-Temperature Superconductor Technologies, Symposium held November 26-29, 2001, Boston MA, Materials Research Society, Pennsylvania, 2002, pp. 211-216.
27. Sathyamurthy, S.; **Paranthaman, M.P**.; Kang, B.W.; Zhai, H.Y.; Aytug, T.; Christen, H.M.; Specht, E.D.; Kowalewski, M.M.; Goyal, A.; Martin, P.M. Fabrication of High Jc YBa2Cu3O7-δ Coated Conductors Using Sol-Gel Buffer Layers on Nickel and Nickel Alloy Substrates, *Materials Research Society Symposium Proceedings* Volume 689, Materials for High-Temperature Superconductor Technologies Symposium held November 26-29, 2001, Boston MA, Materials Research Society, Pennsylvania, 2002, pp. 357-362.
28. Shoup, S.S.; White, M.K.; Krebs, S.L.; Darnell, N.; King, A.C.; Mattox, D.S.; Campbell, I.H.; Marken, K.R.; Hong, S.; Czabaj, B.; **Paranthaman, M.P**.; Christen, H.M.; Zhai, H.Y.; Specht, E.D. The Progress on Low-Cost, High-Quality, High-Temperature Superconducting Tapes Deposited by the Combustion Chemical Vapor Deposition Process, *Materials Research Society Symposium Proceedings* Volume 689, Materials for High-Temperature Superconductor Technologies Symposium held November 26-29, 2001, Boston MA, Materials Research Society, Pennsylvania, 2002, pp. 239-244.
29. Kerchner, H.R.; Cantoni, C.; **Paranthaman, M.P**.; Christen, D.K.; Christen, H.M.; Thompson, J.R.; Miller, D.J. Heavy-Ion Damage to Magnesium Diboride Films: Electrical Transport-Current Characterization, *Materials Research Society Symposium Proceedings*, Volume 689, Materials for High-Temperature Superconductor Technologies, Symposium held November 26-29, 2001, Boston MA, Materials Research Society, Pennsylvania, 2002, pp.133-138.
30. **Paranthaman, M.P**.; Feenstra, R.; Lee, D.F.; Beach, D.B.; Morrell, J.S.; Chirayil, T.G.; Goyal, A.; Cui, X.; Verebelyi, D.T.; Mathis, J.E.; Martin, P.M.; Norton, D.P.; Specht, E.D.; Christen, D.K.; Kroeger,

D.M. Demonstration of High Current Density YBCO Coated Conductors on RE2O3-Buffered Ni Substrates with Two New Alternative Architectures, Advances in Cryogenic Engineering, Kluwer Academic/Plenum Publishers, Edited by U. Balu Balachandran, D. U. Gubser, K. Ted Hartwign and V. A. Bardos; New York, 2000; Vol. 46, Part B, pp. 879-886.

31. Chirayil, T. G.; **Paranthaman, M.P**.; Beach, D.B.; Morrell, J.S.; Sun, E.Y.; Goyal, A.; Williams, R.K.; Lee, D.F.; Martin, P.M.; Kroeger, D.M.; Feenstra, R.; Verebelyi, D.T.; Christen, D.K. Epitaxial Growth of Yb2O3 Buffer Layers on Biaxially Textured-Ni (100) substrates by Sol-gel Process, *Mat. Res. Soc. Symp. Proc.* **1999***, 574*, 51-56.
32. Mathis, J.E.; Goyal, A.; **Paranthaman, M.P**.; Specht, E.D.; Kroeger, D.M.; Lee, D.F.; Martin, P.M. Epitaxial growth of YBa2Cu3O7-delta films on rolling-assisted biaxially textured substrates (RABiTS) produced by pulsed laser ablation at low temperatures. *Advances In Laser Ablation Of Materials*; Editor(s): Singh, R.K.; Lowndes, D.H.; Chrisey, D.B.; Fogarassy, E.; Narayan, J.; Materials Research Society Symposium Proceedings **1998,** *526,* 251-256.
33. Singhal, A.; **Paranthaman, M.P**.; Specht, E.D.; Hunt, R.D.; Beach, D.B.; Martin, P.M.; Lee, D.F. Solution processing of YBa2Cu3O7-x thin films, *Chemical Aspects Of Electronic Ceramics Processing;* Editor(s): Kumta, P.N.; Hepp, A.F.; Beach, D.B.; Arkles, B.; Sullivan, J.J.; Materials Research Society Symposium Proceedings **1998,** *495,* 203-208.
34. Beach, D.B.; Vallet, C.E.; **Paranthaman, M.P**.; Specht, E.D.; Morrell, J.S.; Xue, Z.B. Sol-gel synthesis of rare earth aluminate films as buffer layers for high Tc superconducting films, Chemical Aspects of Electronic Ceramics Processing; Editor(s): Kumta, P.N.; Hepp, A.F.; Beach, D.B.; Arkles, B.; Sullivan, J.J.; Materials Research Society Symposium Proceedings **1998**, *495*, 263-270.
35. Maya, L.; **Paranthaman, M.P**.; Thompson, J.R.; Thundat, T.; Stevenson, R.J. Ferromagnetic Nanocomposite Films from Thermally Labile Nitride Precursors, *Mater. Res. Soc. Symp. Proc.***1997***, 457*, 213-218.
36. Natarajan, A; Wang, W.; Ma, E.; Bhattacharya, R.N.; Khan-Malek, C.; **Paranthaman, M.P**.; Martin, P.M. Electrodeposition of High-Tc Superconductor Material for Microsensor Fabrication, *Mater. Res. Soc. Symp. Proc.* **1997***, 451*, 401-406.
37. Christen, D.K.; Norton, D.P.; Goyal, A.; Budai, J.D.; Feenstra, R.; He, Q.; Klabunde, C.E.; Kroeger, D.M.; Lee, D.F.; List, F.A.; **Paranthaman, M.P**.; Saffian, B.; Specht, E.D.; Chisholm, M.F. Fabrication and Properties of High-Jc Biaxially Aligned YBa2Cu3O7-δ Thick Films on Metallic Tape Substrates, Proceedings of the International Workshop on Critical Currents, *Superconductors of Practical Applications*, **1997**.
38. Bhattacharya, R.N.; Blaugher, R.D.; Natarajan, A.; Carlson, C.M.; Parilla, P.A.; Ginley, D.S.; **Paranthaman, M.P**.; Goyal, A.; Kroeger, D.M. Thick-Film Processing for Tl-oxide Wire and Tape, *J. Supercond*. (Proceedings of the International Workshop on Tl and Hg based Superconducting Materials, Univ. of Cambridge, UK, May 1997).
39. Christen, D.K.; Kerchner, H.R.; Norton, D.P.; Goyal, A.; Budai, J.D.; Feenstra, R.; He, Q.; Klabunde, C.E.; Kroeger, D.M.; Lee, D.F.; List, F.A.; **Paranthaman, M.P**.; Saffian, B.: Specht, E.D.; Chisholm, M.F. Superconducting Transport Properties of High-Jc Biaxially Aligned YBa2Cu3O7-δ Deposits on Metallic Tape Substrates, Proc. of the 1997 Intl. Workshop on Superconductivity (3rd Joint ISTEC/MRS Workshop), Big Island, Hawaii, June 1997.
40. Ren, Z.F.; Lao, J.Y.; Guo, L.P.; Wang, J.H.; Budai, J.D.; Christen, D.K.; Goyal, A.; **Paranthaman, M.P**.; Specht, E.D.; Thompson, J.R.; Epitaxial Film Growth of Tl0.78Bi0.22Sr1.6Ba0.4Ca2Cu3O9 on Rolling-Assisted-Biaxially-Textured Nickel Substrates With YSZ and CeO2 Buffer Layers, *J. Supercond.* (Proceedings of the International Workshop on Tl and Hg based Superconducting Materials, Univ. of Cambridge, UK, May 1997).
41. Goyal, A.; Norton, D.P.; **Paranthaman, M.P**.; Specht, E.D.; He, Q.; List, F.A.; Kroeger, D.M.; Christen, D.K.; Budai, J.D. Low Cost, Single Crystal-like Substrates for Practical, High Efficiency Solar Cells, Proc. of the Future Generation Photovoltaics Technologies Conference, Denver, CO, March 24-28, 1997.

42. J.R. Thompson, D.K. Christen, **M. Paranthaman**, L. Krusin-Elbaum, A.D. Marwick, L. Civale, R. Wheeler, J.G. Ossandon, P. Lisowski, and J. Ullmann, The Impact of Tailored Defects on LengthScales and Current Conduction in High-Tc Superconductors, in Lecture Notes in Physics, edited by P. Klamut, J. Klamut, B. Veel, and B. Dabrowski, Springer-Verlag Publishers, Heidelberg, Germany, **1996**.

43. Maya, L.; **Paranthaman, M.P**.; Thundat, T.; Allen, W.R.; Glover, A.L.; Mabon, J.C. Gold Nanocomposites Prepared by Reactive Sputtering, *Mater. Res. Soc. Symp. Proc.* **1996***, 405*, 529-534.

44. **Paranthaman, M.P**.; Goyal, A.; Norton, D.P.; List, F.A.; Specht, E.D.; Christen, D.K.; Kroeger, D.M.; Budai, J.D.; He, Q.; Saffion, B.; Lee, D.F.; Martin, P.M. Development of Biaxially Textured Buffer Layers on Rolled-Ni Substrates for High Current YBa2Cu3O7-y Coated Conductors, Advances in Superconductivity IX, Springer Publishers, S. Nakajima, and M. Murakami (Eds.), Vol. 2, 669-672, 1997, Proc. of the 9th International Symposium on Superconductivity (ISS '96) Sapporo, Japan, October 21-24, 1996.

45. Goyal, A.; Norton, D.P.; **Paranthaman, M.P**.; Budai, J.D.; Specht, E.D.; Christen, D.K.; Kroeger, D.M.; He, Q.; Saffian, B.; List, F.A.; Lee, D.F.; Klabunde, C.E.; Martin, P.M. Fabrication of High Critical Current Density Superconducting Tapes by Epitaxial Deposition of YBCO Thick Films on Biaxially Textured Metal Substrates, Advances in Superconductivity IX, Springer Publishers, S. Nakajima, and M. Murakami (Eds.), Vol. 2, pp. 685-688, 1997, Proc. of the 9th International Symposium on Superconductivity (ISS '96) Sapporo, Japan, October 21-24, 1996.

46. Shoup, S.S.; **Paranthaman, M.P**.; Beach, D.B.; Specht, E.D. Growth of Epitaxial LaA1O3 and CeO2 Films Using Sol-Gel Precursors, Proc. of the 10th Anniversary High-Temperature Superconductivity Workshop, Houston, TX, Edited by B. Batlogg, C.W. Chu, W.K. Chu, D.U. Gubser, and K.A. Muller, pp. 134-135, March 12-16, 1996.

47. Christen, D.K.; He, Q.; **Paranthaman, M.P**.; Klabunde, C.E.; Feenstra, R.; Goyal, A.; List, F.A.; Kroeger, D.M.; Tkaczyk, J.E.; DeLuca, J.A.; Ren, Z.F.; Wang, J.H. Superconducting Transport Properties of Tl-1223 Deposits on Polycrystalline Substrates, Proc. of the 1995 International Workshop on Superconductivity, Maui, Hawaii, 383-384, June 18-21, 1995.

48. Brynestad, J.; **Paranthaman, M.P**.; Goyal, A.; Heatherly, D.E.; Kroeger, D.M. Formation of Thallium Based High Temperature Superconductors Using Aerosol Flow Reacted Precursor Powders, Proc. of the Intl. Harald A. Oeye Intl. Symp., Trondheim, Norway, Editors: M. Soerlie, T. Oestvold and R. Huglen, 213-217 (1995).

49. Christen, D.K.; He, Q.; **Paranthaman, M.P**.; Klabunde, C.E.; Specht, E.D.; Feenstra, R.; Goyal, A.; List, F.A.; Kroeger, D.M.; Tkaczyk, J.E.; DeLuca, J.A.; Ren, Z.F.; Wang, C.A.; Wang, J.H. Transport Properties of Tl1223 Deposits for Possible Conductor Applications, Proc. of the 7th US-Japan Workshop on High-Tc Superconductors, October 24-25 1995.

50. **M. Paranthaman** and A. M. Hermann, Thallium Based High-T_c Superconducting Oxides - A Summary. In *Organic Conductors: Fundamentals and Applications*, Jean-Pierre Farges ed., 735-737 (Marcel Dekker, Inc., New York, **1994**).

51. Hermann, M.; Naziripour, A.; Duan, H.M.; Yandrofski, R.M.; Tello, R.; **Paranthaman, M.P**.; Price, J.; Galt, D. Synthesis and Characterization of Superconducting Thallium Cuprate Thin Films. Proc. of the 183rd Electrochemical Society Meeting, Honolulu, Hawaii, (May 1993).

52. **M. Paranthaman**, A. Manthiram and J. B. Goodenough, Chemical Characterization of Thallium-Cuprate Superconductors. *In Thallium-Based High Temperature Superconductors*, A.M. Hermann and J.V. Yakhmi eds., 147-175 (Marcel Dekker, Inc., New York, **1993**).

53. **M. Paranthaman**, H. M. Duan and A. M. Hermann, Single Crystal Growth and Characterization of Thallium-Cuprate Superconductors - A Review. In *Thallium-Based High Temperature Superconductors*, A.M. Hermann and J.V. Yakhmi eds., 177-194 (Marcel Dekker, Inc., New York, **1993**).

54. **M. Paranthaman**, W. Kiehl and A. M. Hermann, Synthesis and Characterization of $Tl_2Ba_2CuO_6$ Systems - A Review. In *Studies of High Temperature Superconductors*, A. V. Narlikar ed., Vol. 11, 353-381 (Nova Science Publishers, Inc., New York, **1993**).

55. **Paranthaman, M.P**.; Manthiram, A.; Goodenough, J.B. Chemical Characterization of Thallium Cuprate Superconductors. Proc. of the ICMC '90 Topical Conference. High-Temperature Superconductors. Materials Aspects. Garmisch-Partenkirchen, FRG (May 1990).

56. Manoharan, R.; **Paranthaman, M.P**.; Goodenough, J.B. Electrocatalysis on Sr1-xNbO3-d ($0.05 \leq x \leq 0.3$). Proc. of the 176th Electrochemical Society Meeting, Hollywood, Florida (1989).

57. Rao, G.V.S.; Varadaraju, U.V.; **Paranthaman, M.P**.; Sankaranarayanan, V.; Ravindran, R.; Srinivasan, R. Superconductivity Studies on Tl-Ba-Ca-Cu-O System. Proc. of the 1st Asia-Pacific Conference on Condensed Matter Physics (World Scientific, Singapore) p.305 (1989).

58. Rao, G.V.S.; Aruchamy, A.; Aravamudan, G.; **Paranthaman, M.P**. Studies on Photoelectrochemical Behavior of Certain Oxide Materials for Photoassisted Electrolysis of Water. Adv. Hyd. Energy, 4 (Hydrogen Energy Progress V, Vol. 3), T.N. Veziroglu and J.B. Taylor eds., pp. 1075-1083 (Pergamon Press, New York, 1984).

Selected Invited Presentations Given by Paranthaman (> 100; Since 2010)

1. M. P. Paranthaman, "Additive Manufacturing of High Performance NdFeB Permanent Magnets," US Japan Bilateral Meeting, Japan, December 11, 2020.

2. M. P. Paranthaman, Lithium Recovery from Aqueous Resources and Batteries – A Brief Review, Presentation for ORISE Interns at ORNL, January 7, 2020.

3. M. P. Paranthaman, "Additively Printed Hard and Soft Magnets Enable All-3D Printed Motors, Magnetics 2020, Orlando, Florida, February 11, 2020.

4. M. P. Paranthaman , "Lithium Recovery from Aqueous Resources and Batteries – A Brief Review", CMI Winter Meeting, Golden, Colorado, February 13, 2020.

5. M. Parans Paranthaman et al., "Novel Wide Bandgap Gallium Oxide (Ga_2O_3) Based Power Electronic Devices," TMS 2020, San Diego, CA, February 23-27, 2020.

6. M. P. Paranthaman, "Additive Manufacturing of Rare Earth Bonded Permanent Magnets: Prospects and Challenges", TMS 2020, San Diego, CA, February 27, 2020

7. M. P. Paranthaman, "Additive Manufacturing Method to Fabricate Crack-free Highly Dense Fe-6 wt.% Si Soft Magnets", TMS 2020, San Diego, CA, February 27, 2020.

8. M. P. Paranthaman, Recovery of Carbon from Recycled Tire Rubber for Clean Energy Applications", presentation for SULI CCI Interns at ORNL, April 22, 2020.

9. M. P. Paranthaman, "Recovery of Carbon from Recycled Tire Rubber for Clean Energy Applications", presentation for ORISE high school teachers, July 15, 2020.

10. Invited Speaker, Title: Additive Printing of High Performance Magnets, ORNL Facilities and Operations Division Meeting, October 1, 2018.

11. Invited Speaker, Title: Lithium Ion Batteries and Beyond, Navy Visit, ORNL, TN, October 11, 2018.

12. Invited Speaker, Title: Novel Carbon Polyaniline Capacitive Deionization Electrodes and Magnetic Nano-adsorbents for Water Treatments, 20th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, October 23, 2018.

13. Invited Speaker, Title: Additive Printing of High Performance Magnets, ORNL Oregon State University Visit, Oak Ridge, TN, November 1, 2018.

14. Invited Speaker, Title: Additive Printing of High Performance Magnets, ORNL Dyson Company Visit, Oak Ridge, TN, November 2, 2018.

15. Invited Speaker, Title: Additive Printing of High Performance NdFeB Magnets, Busek Company Visit, Natick, MA, November 12, 2018.

16. Invited Speaker, Title: Additive Printing of High Performance NdFeB Magnets, ORNL SuperPower Company Visit, Oak Ridge, TN, November 13, 2018.

17. Invited Speaker, Title: Lithium Extraction using LDH Sorbents from Geothermal Brine Solution, American Institute of Chemical Engineers Local Chapter, Knoxville TN, November 15, 2018.

18. Invited Speaker, Title: Lithium Extraction from Geothermal Brine Solution, CMI Webinar Series, November 28, 2018

19. Invited Speaker, Title: Additive Printing of High Performance NdFeB Magnets, ORNL SULI Interns, Oak Ridge, TN, December 11, 2018.

20. Invited Speaker, Title: Additive Manufacturing of Magnets, US-Japan Bilateral Workshop, Washington DC, January 9, 2019.

21. AM Magnets: Panel Chair: Invited Speaker, Title: Additive Manufacturing of Magnets, Magnetics 2019, Orlando, FL, January 31, 2019.

22. Invited Speaker: Title: Additive Manufacturing of Magnets, NREL Visit, Golden, CO, February 4, 2019.

23. Invited Speaker: Title: Additive Manufacturing of High Performance NdFeB Nylon Polymer Bonded Magnets, Dyson Magnet Group, ORNL, TN, February 11, 2019.

24. Invited Speaker: Title: Recovery of Carbon from Recycled Tire Rubber for Energy Storage Applications, SULI interns, ORNL, TN, February 13, 2019.

25. Invited Speaker: Title: Additive Manufacturing of High Performance NdFeB Magnets, Roane State Community College, Oak Ridge, TN, February 20, 2019.

26. Keynote Speaker: Title: Novel Tire-derived Carbon Catalysts for Converting Waste Cooking Oil into Biofuel, Catalysis 2019 Meeting, Houston, TX, February 25, 2019

27. Invited Speaker: Title: 3-D Printing of NdFeB Nylon Polymer Bonded Magnets, APS Press Meet, Boston, MA, March 4, 2019.

28. Invited Speaker: Title: Additive Manufacturing of High Performance Anisotropic NdFeB Permanent Magnets, TMS Spring 2019 Meeting, San Antonio, TX, March 12, 2019.

29. Invited Speaker: Title: Additive Manufacturing of High Performance Rare Earth Permanent Magnets: Prospects and Challenges, TMS Spring 2019 Meeting, San Antonio, TX, March 13, 2019.

30. Invited Speaker: Title: Additive Manufacturing of Magnets, AMO Stakeholders Meeting, ORNL, TN, March 26, 2019.

31. Speaker: Title: Novel carbon electrodes for next generation intercalation batteries, MRS Spring Meeting, Phoenix, AZ, April 25, 2019.

32. Invited Speaker: Title: Additive Manufacturing of High Performance Magnets, IEEE Magnetics Society Workshop, Virginia Commonwealth University, Richmond, VA, June 7, 2019.

33. Invited Speaker: Title: Additive Manufacturing of High Performance NdFeB Magnets, Sandia National Laboratory Magnet Workshop, Albuquerque, NM, June 18, 2019.

34. Keynote Speaker: Title: Additive Manufacturing of High Performance NdFeB Magnets, 4th International Conference on Magnetism and Magnetic Materials, London, UK, August 19, 2019.

35. Invited Speaker: Title: Additive Manufacturing of High Performance NdFeB Magnets, Department of Physics, University of Warwick, Coventry, UK, August 20, 2019.

36. Tire derived carbon for Sodium Ion Batteries, Chairing Session: Battery and Energy Technology; New Orleans, Louisiana, May 28 – June 1, 2017; http://www.electrochem.org/231

37. Additive Manufacturing of NdFeB Magnets, INTERMAG 2017, Dublin, Ireland, April 24-28, 2017; http://intermag2017.com/

38. Additive Manufacturing of NdFeB Magnets, Army Research Lab Director Visit to ORNL, April 10, 2017

39. 3D Printing of Bonded Magnets, Tengam, Magnet company, Grand Rapids, Michigan, March 23, 2017; http://www.tengam.com/

40. Recovery of Carbon from Recycled Tires for Energy Storage Applications, ORNL SULI/CCI Interns, Oak Ridge, Tennessee, March 15, 2017

41. Novel Tire Derived Carbon for Energy Storage Applications College of Engineering, Florida State University, February 1-2, 2017; Presented two department seminars

42. Big Area Additive Manufacturing of NdFeB Bonded Magnets, at the Magnetics 2017 conference and CMI Industry Meet, Orlando, Florida, January 18-20, 2017

43. Additive Manufacturing of Bonded Magnets, Arnold Magnetics Technologies, Rochester, New York, December 12, 2016; http://www.arnoldmagnetics.com/en-us/

44. Invited Speaker, Title: Safe and Fast Charging Structural Lithium-Ion Batteries, Global Security Directorate – SAG Meeting, ORNL, Oak Ridge, Tennessee, December 6, 2016

45. Speaker, Two oral presentations, Title: High Performance Tire-Derived Carbon Anodes for Sodium-Ion Batteries, and Additive Manufacturing of Permanent Magnets, MRS Fall Meeting, Boston, Massachusetts, November 27- December 2, 2016; http://www.mrs.org/fall2016

46. Invited Speaker, Title: Current Status of Bonded Magnets Research, US – Japan 4th Bilateral Workshop, Ames Laboratory, Ames, Iowa, November 7-8, 2016

47. Invited Speaker, Title: Novel Carbon Materials for Energy Storage Applications, ORNL SULI/CCI Interns, Oak Ridge, Tennessee, October 12, 2016

48. Webinar Presentation, Additive Manufacturing of NdFeB Permanent Magnets, CMI Website Published, September 21, 2016 – Record number of listeners signed up for this CMI popular webinar presentation

49. Invited Speaker, Title: Additive Manufacturing of Permanent Magnets, CMI Annual Meeting, Oak Ridge, Tennessee, August 16-18, 2016

50. Invited Speaker, Title: Recovery of Lithium from Geothermal Brines and Current Status of Lithium-ion Batteries, Hazen Research, Denver, Colorado, August 12, 2016

51. Invited Speaker, Aluminum Lithium Hybrid Battery, Alcoa Technology Center, Pittsburgh, PA, May 18-19, 2016

52. Invited Speaker, Department Seminar, Title: Novel Carbon from Recycled Tires for Batteries and Supercapacitors, Wake Forest University, Winston-Salem, North Carolina, April 27-28, 2016

53. Invited Speaker, Title: Low-cost tire-derived carbon composite electrodes for energy storage applications; Co-organized a symposium title: Electrode Materials and Electrolytes for Lithium and Sodium-Ion Batteries, Session Chair, MRS Spring Meeting 2016, Phoenix, Arizona, March 27 – April 1, 2016

54. Invited Speaker, Title: 3D Printing of NdFeB Bonded Magnets, TMS 2016 145th Annual Meeting, Nashville, Tennessee, February 17-18, 2016

55. Invited Speaker, Title: Low-cost, high performance anodes for lithium-ion batteries, ORNL SULI Interns, Oak Ridge, Tennessee, February 10, 2016

56. Invited Speaker, Title: Current Status of NdFeB Magnet Printing Research, CMI Magnet Thrust Meeting, San Diego, California, January 11-12, 2016

57. Invited Speaker, Title: Additive Manufacturing of Permanent Magnets, 1st TMS Summit on Integrated Manufacturing and Materials Innovations, Pittsburgh, Pennsylvania, November 17-18, 2015

58. Invited Speaker, Title: Bonded Magnet Research, US – Japan Bilateral Workshop; US – Japan – Europe Trilateral Workshop; Tokyo, Japan, October 26-28, 2015

59. Invited Speaker, Title: Lithium-Ion Batteries, ORNL SULI Interns, Oak Ridge, Tennessee, October 7, 2015

60. Invited Speaker, CMI Annual Meeting, Idaho National Laboratory, Idaho Falls, Idaho, August 4-6, 2015

61. Invited Speaker, Magnet Applications Inc., DuBois, Pennsylvania, July 8, 2015

62. Invited Speaker, RJLee Group Inc., Monroeville, Pennsylvania, June 11-12, 2015

63. Invited Speaker, United Technologies Research Center, Hartford, Connecticut, May 4-5, 2015

64. Invited Speaker, Brown University, CMI Magnet Thrust Meeting, Providence, Rhode Island, May 6-7, 2015

65. Invited Speaker, ACS Spring 2015 Meeting, Denver, Colorado, March 23-25, 2015

66. Invited Keynote Speaker, Rethink Disruption – Emerging Technologies Transforming Business & Society Meeting, San Francisco, California, November 5-6, 2014

67. Invited Speaker, CMI Annual Meeting, Ames, Iowa, September 8-10, 2014

68. Webinar Presentation, Tile: Pyrolytic Carbon Black Composites, YouTube Uploaded, August 7, 2014

69. Invited Speaker, Title: 3D Printing of NdFeB Magnets, GE Global Corporation, CMI Magnet Thrust Meeting, Albany, New York, August 4-6, 2014

70. Invited Speaker, Title: Advancements in Additive Manufacturing, Lawrence Livermore National Laboratory, CMI Magnet Thrust Meeting, Livermore, California, April 7-8, 2014

71. Invited Speaker, Title: Lithium-ion Batteries, SULI Interns, ORNL, Oak Ridge, Tennessee, January 15, 2014

72. Speaker, Title: Investigation of Li-rich High Energy Density Cathodes for Li-ion Batteries, MRS Fall 2013 meeting, Boston, Massachusetts, December 2-5, 2013

73. Invited Speaker, Title: Recovery of Lithium from Geothermal Brine, Simbol Materials Inc., Pleasanton, California, November 21-22, 2013

74. Invited Speaker, Title: Mesoporous TiO_2 Anodes for Lithium-Ion Batteries, SPARK meeting, ORNL, Oak Ridge, Tennessee, November 18, 2013

75. Invited Speaker, Title: TiO_2 Based Safe Lithium-Ion Batteries, Cristal USA, Baltimore, Maryland, October 10-11, 2013

76. Invited Speaker, Title: Additive Manufacturing of Magnets, Ames Laboratory, CMI Kickoff Meeting, Ames, Iowa, September 10-12, 2013

77. Invited Speaker, Title: Novel Solid Electrolytes for Lithium-ion Batteries, The University of Texas at Austin, BES Meeting, Austin, Texas, August 26-27, 2013

78. Invited Speaker, Title: Lithium Extraction Methods, Simbol Materials Inc., Pleasanton, California, July 25-26, 2013

79. Invited Speaker, Title: Investigation of Li-rich High-Energy Density Cathodes, Chaired Sessions, 223rd Electrochemical Society Meeting, Toronto, Canada, May 13-16, 2013

80. Invited Speaker, Title; High Performance Cathode Materials for Lithium-ion Batteries, Lawrence Berkeley National Laboratory, Battery Workshop, Berkeley, California, October 10-11, 2012

81. Invited Speaker, Title: Lithium-ion Batteries, Technical Society of Knoxville, Knoxville, Tennessee, September 18, 2012

82. Invited Speaker, Title: Titanium Oxides Based Safe Batteries, Bren-Tronics Energy Systems, Gainesville, Florida, August 29-30, 2012

83. Invited Speaker, Title: Lithium-ion Batteries, Vellore Institute of Technology, Vellore, India, August 14, 2012

84. Invited Speaker, Title: Fast-charging and Safe Lithium-Ion Batteries, Sandia National Laboratory, Albuquerque, New Mexico, July 9-10, 2012

85. Invited Speaker, Title: TiO_2 Based Lithium-Ion Batteries, LBNL Advanced Light Source, Berkeley, California, May 1-2, 2012

86. Invited Speaker, Title: Advanced Anode Materials for Lithium-ion Batteries, Bren-Tronics Energy System, Alachua, Florida, December 8-9, 2011

87. Speaker, Two Oral Presentations, Title: Controlled surface modification of $LiMn_{1.5}Ni_{0.5}O_4$ spinel cathode materials for Lithium-ion batteries; Mesoporous TiO_2 sphere with nitrogen adsorption for lithium-ion batteries, 220th ECS Fall Meeting, Boston, Massachusetts, October 12-13, 2011

88. Invited Speaker, Title: Flexible Silicon Solar Photovoltaics, Ferro Corporation, Cleveland, Ohio, February 23-24, 2011

89. Speaker, Title: Single Crystalline Si Photovoltaics on Flexible Copper Substrates, MRS Fall Meeting 2010, Boston, Massachusetts, November 28 – December 1, 2010

90. Speaker, Co-organizing a Symposium, Title: High Temperature Superconductor Wires and Tapes, MS&T 2010, Houston, Texas, October 18-20, 2010

91. Invited Speaker, Title: Flexible Si Thin Films, Ascent Solar, Denver, Colorado, April 20-21, 2010

92. Invited Speaker, Title: Growth of textured Si thin films on RABiTS, National Renewable Energy Laboratory, Ampulse Meeting, Denver, Colorado, April 21-22, 2010

Total Number of Patents and Inventions of Paranthaman: >75
Issued U.S. Patents (54)**; Published U.S. Patent Applications** (16)**;**
Invention Disclosure Elected to File/Filed (9)

List of Issued U.S. Patents (54)

1. **M. P. Paranthaman**, A. K. Naskar, A. Lachgar, Y. Xia, Z. D. Hood, S. P. Adhikari, "Production of Biofuels with Novel Salts Impregnated Tire-Derived Carbon Catalysts", U.S. Patent # 11,117,121, Issued on September 14, 2021.

2. A. Naskar, and **M. P. Paranthaman**, "Pyrolytic carbon black composite and method of making the same," U.S. Patent # 10,985,372, Issued on April 20, 2021.

3. C. A. Bridges, **M. P. Paranthaman**, G. Veith, Z. Bi, "Nitride- and Oxide-modified electrode compositions and methods of make," U.S. Patent # 10,879,533, Issued on December 29, 2020.

4. **M. P. Paranthaman**, A. K. Naskar, C. Tsouris, and M. R. Ivancevic, "Carbon Electrodes Based Capacitive Deionization for the Desalination of Water," U.S. Patent # 10,807,888 B2, Issued on October 20, 2020.

5. **M.P. Paranthaman**, L. Li, V. Kunc, B.K. Post, O. Rios, R.H. Fredette, J. Ormerod, "MAGNETIC FEED MATERIAL AND ITS USE IN PRODUCING BONDED PERMANENT MAGNETS BY ADDITIVE MANUFACTURING", U.S. Patent # 10,766,181 B2, Issued on September 8, 2020.

6. **M. P. Paranthaman**, M. A. McGuire, D. S. Parker, O. Rios, B. C. Sales, H. Ucar, S. K. McCall, R. W. McCallum, and C. I. Nlebedim, "Neodymium-iron-boron magnet with selective surface modification, and method of producing same," U.S. Patent # 10,586,640, Issued on March 10, 2020.

7. A. K. Naskar, **M. P. Paranthaman**, M. Boota, and Y. Gogotsi, "Flexible and Conductive Tire-derived Carbon/Polymer Paper as Pseudocapacitive Electrode," U.S. Patent # 10,460,881; Issued on October 29, 2019.

8. Y. Li, **M. P. Paranthaman**, A. K. Naskar, and K. M. Akato, "Carbon-metal Oxide Composite Materials and Their Use in Anodes of Lithium and Sodium ion Batteries," U.S. Patent # 10,355,268; Issued on July 16, 2019.

9. A. K. Naskar, and **M. P. Paranthaman**, "Pyrolytic Carbon Black Composite and Method of Making the Same," U.S. Patent # 10,320,000; Issued on June 11, 2019.

10. **M. P. Paranthaman**, R. Bhave, B. A. Moyer, S. Harrison, "Composition for Recovery of Lithium from Brines, and Process of Using Said Compositions," U.S. Patent # 10,266,915; Issued on April 23, 2019.

11. M. Z. Hu, J. T. Simpson, T. Aytug, **M. P. Paranthaman**, and M. R. Sturgeon, "Super-Surface Selective Nanomembranes Providing Simultaneous High Permeation Flux and High Selectivity," U. S. Patent # 10,179,313, Issued on January 15, 2019.

12. **M. P. Paranthaman**, C. A. Bridges, S. Yoon, "Surface Modifications for Electrode Compositions and Their Methods of Making," US Patent # 10,128,489, Issued Nov 13, 2018.

13. C. A. Bridges, **M. P. Paranthaman**, G. Veith, Z. Bi, "Nitride- and Oxide-modified electrode compositions and methods of make," U.S. Patent # 10,044,038, Issued on August 7, 2018**.**

14. **M.P. Paranthaman**, C.A. Bridges, S. Yoon, X.-G. Sun, S. Dai, "Coating compositions for electrode compositions and their methods of making, U.S. Patent # 10,020,493, Issued on July 10, 2018.

15. G.M. Brown, **M.P. Paranthaman**, S. Dai, X-G. Sun, H. Liu, "High Energy Density Aluminum Battery", U.S. Patent # 9,997,802 B2, Issued on June 12, 2018.

16. A.K. Naskar, **M.P. Paranthaman**, M. Boota, Y. Gogotsi**, "**Flexible and Conductive Waste Tire-Derived Carbon/Polymer Composite Paper as Pseudocapacitive Electrode", U.S. Patent # 9,941,058 B2, Issued on April 10, 2018.

17. Z.D. Hood, S.P. Adhikari, M.W. Wright, A. Lachgar, Y. Li, A.K. Naskar, **M.P. Paranthaman**, "Surface Treated Carbon Catalysts Produced from Waste Tires for Fatty Acids to Biofuel Conversion, U.S. Patent No. 9,884,804, Issued on February 6, 2018

18. T. Aytug, **M.P. Paranthaman**, J.T. Simpson, D.F. Bogorin, "Superhydrophobic films and methods for making superhydrophobic films", U.S. Patent # 9,771,656, Issued on September 26, 2017.

19. B.L. Armstrong, T. Aytug, **M.P. Paranthaman**, J.T. Simpson, D.A. Hillesheim, N.E. Trammell, "Optically transparent, superhydrophobic, biocompatible thin film coatings and methods for producing same, U.S. Patent # 9,752,049, Issued on September 5, 2017.

20. **M. P. Paranthaman**, Zhonghe Bi, Craig A. Bridges, and Gilbert M. Brown, "Mesoporous metal oxide microsphere electrode compositions and their methods of making," U.S. Patent # 9,620,783, Issued on April 11, 2017.

21. **M. P. Paranthaman**, H. Liu, G. M. Brown, X. G. Sun, Z. Bi, "Mesoporous metal oxide microsphere electrode compositions and their methods of making, " U.S. Patent # 9,515,318, Issued on December 6, 2016.

22. G. M. Brown, **M. P. Paranthaman**, S. Dai, N. J. Dudney, A. Manthiram, T. J. McIntyre, X. Sun, H. Liu, "High Energy Density Aluminum Battery", U.S. Patent # 9,466,853, Issued on October 11, 2016.

23. A. K. Naskar, **M. P. Paranthaman**, and Z. Bi, "Pyrolytic Carbon Black Composite and Method of Making the Same", U.S. Patent # 9,441,113 B2, Issued on September 13, 2016.

24. M. Z. Hu, J. T. Simpson, T. Aytug, **M. P. Paranthaman**, M. R. Sturgeon, **"**Super-surface selective nanomembranes providing simultaneous high permeation flux and high selectivity", U.S. Patent # 9,308,501, Issued on April 12, 2016.

25. X. Qiu, **M. P. Paranthaman**, M. Chi, I. N. Ivanov, Z. Zhang, "Array of titanium dioxide nanostructures for solar energy utilization", U.S. Patent # 8,920,767 Issued on December 30, 2014.

26. **M. P. Paranthaman**, Z. Bi, C. A. Bridges, G. M. Brown, "Mesoporous metal oxide microsphere electrode compositions and their methods of making", U.S. Patent # 8,911,904, Issued on December 16, 2014.

27. A. Goyal, **M. Paranthaman**, S. Wee, "Chemical Solution Seed Layer for RABiTS Tape", U.S. Patent # 8,748,350 B2, Issued on June 10, 2014.

28. T. Aytug, **M. P. Paranthaman**, D. K. Christen, O. Polat, "Hetero-junction photovoltaic device and method of fabricating the device," U.S. Patent # 8,647,915, Issued on February 11, 2014.

29. T. Aytug, **M. Paranthaman**, and O. Polat, "Method for producing microstructured templates and their use in providing pinning enhancements in superconducting films deposited thereon," U.S. Patent # 8,486,864, Issued on July 16, 2013.

30. T. Aytug, **M. Parans Paranthaman**, and O. Polat, "Phase-separated, epitaxial composite cap layers for electronic device applications and method of making the same," United States Patent # 8221,909, Issued on July 17, 2012.

31. **M. Parans Paranthaman**, S. Sathyamurthy, T. Aytug, P.N. Arendt, L. Stan, and S.R. Foltyn, "Chemical Solution Deposition Method of Fabricating Highly Aligned MgO Templates" United States Patent # 8,088, 503 B3, Issued on Jan. 3, 2012.

32. **M. Parans Paranthaman**; Schoop, Urs; Goyal, Amit; Thieme, Cornelis Leo Hans; Verebelyi, Darren T; Rupich, Martin W; "Doped LZO buffer layers for laminated conductors,", United States Patent # 7,683,010, Issued on March 23, 2010.

33. **M. Parans Paranthaman**; Sathyamurthy, Srivatsan; Aytug, Tolga; Arendt, Paul N; Stan, Liliana; Foltyn, Stephen R; " Chemical solution deposition method of fabricating highly aligned MgO templates, United States Patent # 7,553,799, Issued on June 30, 2009.

34. **M. P. Paranthaman**, and Tolga Aytug, "Superconductors on Iridium Substrates and Buffer Layers," United States Patent # 7,432,229 B2, Issued on October 7, 2008.

35. **M. Parans Paranthaman**, Urs Schoop, Amit Goyal, C.L.H. Thieme, Darren T. Verebelyi, and Martin W. Rupich, "Doped Y_2O_3 Buffer Layers for Laminated Conductors," U. S. Patent # 7,258,928 B2 (issued Date: August 21, 2007).

36. **M. Parans Paranthaman**, T. Aytug, and D.K. Christen, "Method of depositing an electrically conductive oxide buffer layer on a textured substrate and articles formed therefrom," U.S. Patent # 6,956,012 (issued Date: October 18, 2005).

37. **M.P. Paranthaman**, T. Aytug, D.K. Christen, R. Feenstra, and A. Goyal, "Buffer layers and articles for electronic devices," U.S. Patent # 6,764,770 (issued Date: July 20, 2004).

38. D.B. Beach, J.S. Morrell, **M. Paranthaman**, T. Chirayil, E.D. Specht, and A. Goyal, "Laminate articles on biaxially textured metal substrates," U.S. Patent # 6,663,976 (issued Date: December 16, 2003).

39. **M. Parans Paranthaman**, T. Aytug, and D.K. Christen, "Method of depositing an electrically conductive oxide buffer layer on a textured substrate and articles formed therefrom," U.S. Patent # 6,617,283 (issued Date: September 9, 2003).

40. **M. Paranthaman**, A. Goyal, D.M. Kroeger, and F.A. List, "Method of making MgO buffer layers on rolled nickel or copper as superconductor substrates," U.S. Patent # 6,468,591 (Issued Date: October 22, 2002).

41. A. Goyal, D.M. Kroeger, **M. Paranthaman**, D.F. Lee, R. Feenstra, and D.P. Norton, "Method of depositing a protective layer over a biaxially textured alloy substrate and composition therefrom," U.S. Patent # 6,451,450 (Issued Date: September 17, 2002).

42. D.B. Beach, J.S. Morrell, **M. Paranthaman**, T.G. Chirayil, E.D. Specht, and A. Goyal, "Method of Depositing Buffer Layers on Biaxially Textured Metal Substrates," U.S. Patent # 6,440,211 (Issued Date: August 27, 2002).

43. R.K. Williams, **M. Paranthaman**, T.G. Chirayil, D.F. Lee, A. Goyal, and R. Feenstra, "Laminate Article," U.S. Patent # 6,399,154 (Issued Date: June 4, 2002).

44. R.K. Williams, **M. Paranthaman**, T.G. Chirayil, D.F. Lee, A. Goyal, and R. Feenstra, "Rare Earth Zirconium Oxide Buffer Layers on Metal Substrate," U.S. Patent # 6,270,908 (Issued Date: August 7, 2001).

45. **M. Paranthaman**, A. Goyal, D.M. Kroeger, and F.A. List, III, "MgO buffer layers on rolled nickel or copper as superconductor substrates," U.S. Patent # 6,261,704 (Issued Date: July 17, 2001).

46. S.S. Shoup, **M. Paranthamam**, D.B. Beach, D.M. Kroeger, and A. Goyal, "Buffer Layers on Biaxially Textured Metal Substrates," U.S. Patent # 6,235,402 (Issued Date: May 22, 2001). (last name misspelled)

47. **M. Paranthaman**, D.F. Lee, D.M. Kroeger, and A. Goyal, "Buffer Layers on Metal Surfaces Having Biaxial Texture as Superconductor Substrates," U.S. Patent # 6,159,610 (Issued Date: December 12,

2000).

48. **M. Paranthaman**, D.F. Lee, D.M. Kroeger, and A. Goyal, "Buffer Layers on Metal Surfaces Having Biaxial Texture as Superconductor Substrates," U.S. Patent # 6,156,376 (Issued Date: December 5, 2000).

49. **M. Paranthaman**, D.F. Lee, D.M. Kroeger, and A. Goyal, "Buffer Layers on Rolled Nickel or Copper as Superconductor Substrates," U.S. Patent # 6,150,034 (Issued Date: November 21, 2000).

50. A. Goyal, E.D. Specht, D.M. Kroeger, **M. Paranthaman**, "Method of forming Biaxially Textured Alloy Substrates and Devices thereon," U.S. Patent # 6,106,615 (Issued Date: August 22, 2000).

51. S.S. Shoup, **M. Paranthamam**, D.B. Beach, D.M. Kroeger, and A. Goyal, "Sol-gel Deposition of Buffer Layers on Biaxially Textured Metal Substances," U.S. Patent # 6,077,344 (Issued Date: June 20, 2000). (last name misspelled)

52. R. Feenstra, D. K. Christen, and **M. Paranthaman**, "Method for making High-Critical Current-density $YBa_2Cu_3O_7$ Superconducting layers on Metallic Substrates," U.S. Patent # 5,972,847 (Issued Date: October 26, 1999).

53. J.D. Budai, D.K. Christen, A. Goyal, Q. He, D. M. Kroeger, D. F. Lee, F. A. List III, D. P. Norton, **M. Paranthaman**, B. C. Sales, and E. D. Specht, "High T_c YBCO Superconductor deposited on Biaxially Textured Ni Substrate," U.S. Patent # 5,968, 877 (Issued Date: October 19, 1999).

54. A. Goyal, E. D. Specht, D. M. Kroeger, and **M. Paranthaman**, "Method of forming Biaxially Textured Alloy Substrates and Devices thereon," U.S. Patent # 5,964,966 (Issued Date: October 12, 1999).

Partial List of Published U.S. Patent Applications (16)

1. R. R. Bhave, V. Deshmane, N. N. Linneen, S. Harrison, **M. Paranthaman**, and B. A. Moyer, "Forward Osmosis Composite Membranes for Concentration of Lithium Containing Solutions," U.S. Patent Application # 20200047124 A1, Issued on February 13, 2020.

2. A. K. Naskar, **M. P. Paranthaman**, X. Yang, Y. Xia, Z. D. Hood, Y. Li, "Carbon Supports for Oxygen Reduction Catalysts," U.S. Patent Application # 20190330440 A1, October 31, 2019.

3. R. R. Bhave, S. Harrison, B. A. Moyer, and **M. P. Paranthaman, "**LITHIUM EXTRACTION COMPOSITE FOR RECOVERY OF LITHIUM FROM BRINES, AND PROCESS OF USING SAID COMPOSITION," U.S. Patent Application # 20190275473 A1, September 12, 2019.

4. A. K. Naskar, and **M. P. Paranthaman, "**PYROLYTIC CARBON BLACK COMPOSITE AND METHOD OF MAKING THE SAME," U.S. Patent Application # 20190260026 A1, August 22, 2019.

5. **M. P. Paranthaman**, A. K. Naskar, A. Lachgar, Y. Xia, Z. D. Hood, S. P. Adhikari, "Production of Biofuels with Novel Salts Impregnated Tire-Derived Carbon Catalysts", December 27, 2018.

6. B. G. Compton, **M. Parans Paranthaman**, Orlando Rios, C. I. Nlebedim, "Novel 3D Printing Method to Fabricate Bonded Magnets of Complex Shape," US Patent Application # 20180236724, August 23, 2018.

7. H. Ucar, **M. P. Paranthaman**, O. Rios, B. M. Monono, B. K. Post, V. Kunc, C. I. Nlebedim, R. W. McCallum, S. K. McCall, "Bonded Permanent Magnets Produced by Additive Manufacturing," US Patent Application # 20180229442 A1, August 16, 2018.

8. **M. P. Paranthaman**, O. Rios, W. G. Carter, D. Fenn, C. I. Nlebedim, "Bonded Permanent Magnets Produced by Additive Manufacturing," U.S. Patent Application # 20180215854 A1, August 2, 2018.

9. A.K. Naskar, **M.P. Paranthaman**, M. Boota, Y. Gogotsi, "FLEXIBLE AND CONDUCTIVE WASTE TIRE-DERIVED CARBON/POLYMER COMPOSITE PAPER AS PSEUDOCAPACITIVE ELECTRODE", U.S. Patent Application # 20180204687 A1, July 19, 2018.

10. L. Li, **M.P. Paranthaman**, V. Kunc, B.K. Post, O. Rios, R.H. Fredette, J. Ormerod, I.C. Nlebedim, T. Lograsso, "BONDED PERMANENT MAGNETS PRODUCED BY BIG AREA ADDITIVE MANUFACTURING, U.S. Patent Application # 20180122570 A1, May 3, 2018.

11. Y. Li, **M. P. Paranthaman**, A. K. Naskar, and K. M. Akato, "Carbon-Metal Oxide Composite Materials and their use in Anodes of Lithium and Sodium Ion Batteries," U.S. Patent Application # 20170054144, February 23, 2017

12. **M. P. Paranthaman**, T. Saito, T. Aytug, K. J. Leonard, R. J. Duckworth, G. Polyzos, K. Hong, "Method of Producing Radiation-Resistant Polymer Composite Materials," U. S. Patent Application # 20160208073, July 21, 2016

13. H. M. Branz, C. W. Teplin, P. Stradins, L. Heatherly, **M. P. Paranthaman**, "Back Contact to Film Silicon on Metal for Photovoltaic Cells," U. S. Patent Application # 20130168684, July 4, 2013

14. **M. P. Paranthaman**, S-H. Wee, F. A. List, III, C. Cantoni, L. Heatherly, Jr., K. Kim, T. R. Fanning, J. Bornstein, "Thin Film Structure for Photovoltaic Applications," U. S. Patent Application # 20120192937, August, 2, 2012

15. T. Aytug, **M. P. Paranthaman**, V. A. Maroni, and D. Miller, "Nb-doped Perovskite Flux Pinning of REBCO Based Superconductors by MOCVD," U.S. Patent Application # 20120035056, Issued on February 9, 2012

16. C. W. Teplin, H. M. Branz, L. Heatherly, **M. P. Paranthaman**, "Crystal Silicon Processes and Products," U. S. Patent Application # 20110308615, December 22, 2011

Partial List of Invention Disclosures/Elected for Filing/Patent Applications Filed (9)

1. Invention Disclosure Record Number: 81912850. **Paranthaman, M.P**. (ORNL); Yagues, Y. (ORISE); Evans, S.F. (UTK); Moyer, B.A. (ORNL), "Lithium extraction from geothermal brine solutions via nanoengineered polymer composite sorbent bead," April 8, 2019.

2. Invention Disclosure Record Number: 8191045; Invention Ref. # 201804303 C. J. Jafta, C. A. Bridges, H. Lyu, **M. P. Paranthaman**, S. Dai, X. Sun, Y. Li, "Bis(trimethylsilyl) 2-fluoromalonate derivatives as electrolyte additives for high voltage lithium ion batteries," December 27, 2018.

3. Invention Disclosure Record Number: 2532, C. L. Cramer, P. Nandwana, A. M. Elliott, C. Chinnasamy, and **M. P. Paranthaman**, "Novel Additive Manufacturing Method to Fabricate High Density and Strength Fe-6Si Magnetic Alloy," November 5, 2018.

4. Invention Disclosure Record Number: 2526, **M. P. Paranthaman**, A. Levine, and R. J. Lee, "Novel Sulfur Limonene Polysulfide Cathodes for Lithium-Sulfur Batteries," October 22, 2018.

5. Invention Disclosure Record Number: 2502, **M. P. Paranthaman**, A. A. Hussan, U. K. Vaidya, and V. Kunc, "Novel Method to Prepare High Performance Magnet Polymer Composite Magnets," September 28, 2018.

6. Invention Disclosure Record Number: 2457, **M. P. Paranthaman**, and B. A. Moyer, "Reengineered Sorbents for Li Extraction from Ambient Temperature Geothermal Brine," August 13, 2018.

7. **M. P. Paranthaman**, Orlando Rios (ORNL), William G. Carter (ORISE), Susan Donaldson and David Fenn (PPG); Invention Disclosure # 201603683; DOE S-138,324; Title: Additive printing of bonded magnets using magnet powders and a polymer composition; *US Patent application process is in progress.*

8. Ramesh Bhave, Stephen Harrison, **M. Parans Paranthaman** and Bruce Moyer; Recovery of lithium from naturally occurring brines; U.S. Provisional Patent Application Filed.

9. Z. Hood, A. Naskar, and **M. P. Paranthaman**, "Waste Tire-Derived Carbon Supports for Oxygen Reduction Catalysts" Invention Disclosure # 201703874, DOE S-138,532, US Patent Application in progress.

10. Cai-Lin Wang, **M. P. Paranthaman**, C. A. Bridges, J. Hodges, and R. Riedel, "Bright Eu2+-Activated Polycrystalline Ceramic Neutron Scintillators" Invention Disclosure 201703902, DOE S-138,560, US Patent Application in progress.