

Curriculum Vitae
M. Parans Paranthaman, Ph.D.
Oak Ridge National Laboratory
Corporate Fellow/UT-Battelle Distinguished Inventor
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Education/Training

<u>Institution and Location</u>	<u>Degree</u>	<u>Year(s)</u>	<u>Field of Study</u>
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

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**)
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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 Forum (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-Organizer 2020 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 LaMnO₃ 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. Bhawe, "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 Sb₂O₃ 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](https://doi.org/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 Ga₂O₃ Schottky Barrier Diodes,” *IEEE Trans. on Power Electronics* (2020). [10.1109/TPEL.2020.3001530](https://doi.org/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 Yildirim, 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. Nlebedim, “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 Sciences* (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>
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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, Title: 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
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Total Number of Patents and Inventions of Paranthaman: >75

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