

CURRICULUM VITAE

Indrajit Charit, Ph.D., P.E.

NAME: Charit, Indrajit

DATE: Dec. 21, 2016

RANK OR TITLE: Associate Professor of Materials Science & Engineering and Nuclear Engineering

YEAR OF TENURE: 2013

DEPARTMENT: Chemical & Materials Engineering

OFFICE LOCATION AND CAMPUS ZIP: McClure 405D, 3024

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EDUCATION BEYOND HIGH SCHOOL:

Degrees:

Ph.D. in Metallurgical Engineering, University of Missouri-Rolla, Rolla (currently Missouri University of Science & Technology), Missouri, USA, 2004

Dissertation: Microstructural and Superplastic Characteristics of Friction Stir Processed Aluminum Alloys

Major Advisor: Professor Rajiv S. Mishra

M.E. in Metallurgy, Indian Institute of Science, Bangalore, India, 2000

Thesis: High Temperature Deformation Characteristics of a Low Purity 3 Mol% Ytria Stabilized Zirconia

Major Advisor: Professor Atul H. Chokshi

B.E. in Metallurgical Engineering, Bengal Engineering College (currently Indian Institute of Engineering Science & Technology), Sibpur, India, 1997

EXPERIENCE:

Teaching, Extension and Research Appointments:

Associate Professor, Chemical and Materials Engineering, July 2013 – Present

Assistant Professor, Chemical and Materials Engineering, July 2007 – June 2013

Affiliate Faculty Member, Materials Science and Engineering, Boise State University, 2009 – Present

Center for Advanced Energy Studies (CAES) Affiliate Faculty Member, 2010 – 2011

Postdoctoral Fellow, Nuclear Engineering, North Carolina State University, Jan. 2005 – June 2007

Postdoctoral Research Associate, Materials Science and Engineering, University of Missouri-Rolla,
June 2004 – Dec. 2004

Graduate Research Assistant, Metallurgical Engineering, University of Missouri-Rolla, Aug 2000 –
May 2004

Non-Academic Employment including Armed Forces:

Visiting Faculty, Materials and Fuels Complex, Idaho National Laboratory, Summer 2008

Project Engineer, TVS Suzuki Limited, Hosur, India, Feb. 2000 - June 2000

Quality Engineer, Electrosteel Castings Limited, Calcutta, India, Aug. 1997 – July 1998

TEACHING ACCOMPLISHMENTS:

Areas of Specialization:

Mechanical Behavior of Materials, Energy Materials, Advanced Processing Techniques

Regular Courses Taught:

MSE 101 (2 cr.), Team-Taught (since Fall 2013)
 MSE 507 (3 cr.), Microstructures and Defects, Fall 2013 / 2015
 MSE/NE 504 (3 cr.), Nuclear Degradation Mechanisms, Spring 2013 (Team-Taught)
 MSE/NE J438/J538 (3 cr.), Fundamentals of Nuclear Materials, Spring 2008 / 2009 / 2010 / 2011 / 2012 / 2014 / 2015
 MSE/NE J437/J537 (3 cr.), Radiation Effects on Materials, Fall 2008 / 2009 / 2010 / 2011, Spring 2016
 MSE 313 (4 cr.), Physical Metallurgy, Fall 2010 / 2011 / 2012 / 2013 / 2014 / 2015 / 2016
 MSE 412 (3 cr.), Mechanical Behavior of Materials, Spring 2011 / 2012 / 2013 / 2014 / 2015 / 2016
 MET/MSE 407 (3 cr.), Materials Fabrication, Spring 2008, Fall 2008 / 2009
 MET/MSE 417 (3 cr.), Instrumental Analysis, Fall 2007 / 2009 / 2010
 MET/MSE J421/J521 (3 cr.), Light Metals, Spring 2008/ Fall 2016
 MSE J404/J504 (3 cr.), Microstructural Design of Advanced Materials, Spring 2009
 MSE/NE J404/J504 (1 cr.), Special Topics in Materials Science & Engineering, Summer 2008

Directed Studies Taught to Graduate Students:

MSE 502 (3 cr.), Nuclear Reactor Materials, Fall 2015
 MSE 502 (3 cr.), Neutron Diffraction Studies, Spring 2012
 MSE 502 (3 cr.), Texture Characterization and Analysis, Spring 2012
 MSE 502 (3 cr.), High Temperature Deformation and Failure Mechanisms, Fall 2011
 MSE 502 (3 cr.), Mechanical Alloying, Summer 2011
 MSE 502 (3 cr.), Advanced Phase Transformation, Summer 2009

Students Advised:

Undergraduate Student Academic Advisees (on average): 15-20/year

Mentored in various research projects: 24

Jack Armstrong (Fall 2016)
 Martin Taylor (Summer 2016, Fall 2016)
 Sean Instasti (Summer 2016, Spring 2017)
 Barbara Correa (Brazilian exchange student, Fall 2015)
 Joao Quintino Palhares (Brazilian exchange student), Spring 2015
 Samuel Madeira Bessa (Brazilian exchange student), Spring 2015
 Brandon Cisco (Summer & Fall 2014)
 Maxwell Bowdon (Fall 2013 / Spring 2014)
 Dallas Roberts (Summer 2013)
 Nikunja Shrestha (Spring 2013)
 Sweta Khanal (Summer 2010, Fall 2010 / 2011, Spring 2012, Summer 2012, Fall 2012)
 Brad Burroughs (Spring 2012)
 Tshering Sherpa (Spring 2012 / 2013)
 Zachary Wuthrich (MSE minor), Spring 2012
 Brady McNall (Summer 2011)
 Mary O'brien (Spring 2011, Fall 2011)
 Robert Meine (Fall 2011, Spring 2012, Fall 2012)
 Mark Aikey (Spring 2010, Spring 2011, Fall 2015)
 Lindsay Barnett (Fall 2009, Fall 2010)
 Grace Newhouse (Spring 2009, Fall 2009)
 Anup Khatri (Fall 2009)
 Adam Anderson (Summer 2009)
 Maneel Bhardwaj (Spring 2009)
 Triratna Shrestha (Fall 2007, Spring 2008, Fall 2008)

Graduate Students:

Advised to completion of degree as major professor: 11 (thesis/dissertation)

Ankan Guria, "Mechanical Behavior of Aluminum-Bearing Ferritic Alloys for Accident-Tolerant Fuel Cladding Applications," **MS in MSE** (Graduated in Fall 2015); joined Sandvik India.

Cody Hill, “Processing and Characterization of HfB₂ and ZrB₂ Solid Solution Composites for Magnetohydrodynamic (MHD) Power Generation Applications, **MS in MSE** (Graduated in Fall 2015); to join ATK (Vista Outdoor) Lewiston.

Somayeh Pasebani, “Processing of Oxide Dispersion Strengthened Alloys via Mechanical Alloying and Spark Plasma Sintering,” **PhD MSE** (Graduated in Summer 2014); joined the North American Höganäs, Inc., Johnstown, PA

Sultan Alsagabi, “High Temperature Deformation Behavior, Thermal Stability and Irradiation Performance in Grade 92 Steel,” **PhD MSE** (Graduated in Spring 2014); joined King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia.

Triratna Shrestha, “Creep deformation, Rupture Analysis, Heat Treatment and Residual Stress Measurement of Monolithic and Welded Grade 91 Steel for Power Plant Components,” **PhD MSE** (Graduated in Spring 2013, currently working at the Integrated Global Services, Midlothian, VA).

Michael Glazoff, “Advanced High Temperature Reactor: Computational Thermodynamics Study of Materials, Their Diffusion Welding and Corrosion,” **MS NE** (Graduated in Spring 2013, currently working at the Idaho National Laboratory)

Jonathan A. Webb, “Analysis and Fabrication of Tungsten Cermet Materials for Ultra-High Temperature Reactor Applications via Pulsed Electric Current Sintering (PECS),” **PhD NE** (Graduated Summer 2012, currently working in Areva)

Nathan Jerred, “Solid State Joining of High Temperature Metallic Materials via Pressure Resistance Welding for Advanced Nuclear Reactor Applications,” **MS NE** (Graduated Summer 2011, working at the Center for Space Nuclear Research)

Kalyan Chitrada, “Thermal Stability Studies in MA956 and MA754 Alloys,” **MS MSE** (Graduated Fall 2010, working towards PhD degree at the University of Idaho)

Sultan Alsagabi, “A Fundamental Study on the Thermal Stability, Mechanical and Corrosion Properties of AZ31 Mg Alloy,” **MS MSE** (Graduated Fall 2009)

Sean McCormick, “The Effect of Heat Treatment and Creep Deformation on the Microstructural Characteristics of ATI 20+25 NbTM Alloy,” **MS MSE** (Graduated Summer 2009, joined NavAir)

Advising as major professor: 7

Martin Taylor, “Creep and Creep-Fatigue Behavior of Alloy 709,” **MS in MSE** (expected Spring 2018)

Arnab Kundu, “Development of Fe-9Cr based alloys using mechanical alloying and spark plasma sintering,” **PhD in MSE** (expected Fall 2018)

Nathan Jerred, “Understanding the Fuel-Cladding-Chemical-Interaction in Fast Reactor Fuels,” **PhD in MSE** (expected Spring 2019)

Dallas Roberts, “Mechanical Properties and Microstructure of Additively Manufactured Stainless Steel,” **MS in MSE** (expected Spring 2018)

Anumat Sittiho, “Friction Stir Processing of an Aluminum-Bearing, High-Chromium Ferritic Steel: Microstructure and Mechanical Properties,” **MS in Metallurgical Engineering** (Expected Spring 2017)

Ramprashad Prabhakaran*, “Small Volume Mechanical Test Techniques for Characterizing Structural and Fuel Materials,” **PhD in MSE** (Expected Summer 2016)

Francine Rice**, “Blistering Characteristics in U-Mo Alloys,” **MS in NE** (Expected Summer 2016)

(* Full-Time Employee at the Pacific Northwest National Laboratory; ** Full-time employee of the Idaho National Laboratory)

Served/serving on graduate committees: 44 (including the above)

Jakraphan Ninlachart, MS in Metallurgical Engineering (advisor: Dr. Krishnan Raja)

Benjamin Andrews, MS in ME (advisor: Dr. Gabriel Potirniche)

Michael Opoku, MS in MSE (advisor: Dr. Raghunath Kanakala)

Stuart Whitman, MS in MSE (advisor: Dr. Krishnan S. Raja)

Kalyan Chitrada, PhD in MSE (advisor: Dr. Krishnan Raja)
 Steven Sitler, MS in MSE / PhD in MSE (advisor: Dr. Krishnan S. Raja)
 Dominic Nwoke, MS in MSE (advisor: Dr. Daniel Choi)
 Clemente J. Parga, MS in NE (advisor: Dr. Akira Tokuhiro)
 Keshav R. Pokharel, MS MSE (advisor: Dr. Batric Pesic)
 Ke Xue, MS MSE (advisor: Dr. Daniel Choi)
 Toni Gutknecht, MS NE (advisor: Dr. Vivek Utgikar)
 Jon Carmack, PhD NE (advisor: Dr. Fred Gunnerson)
 Ken Marsden, PhD MSE (advisor: Dr. Supathorn Phongikaroon)
 Bryan Riga, MS ME (advisor: Dr. Karl Rink)
 Natalie Gese, MS MSE (advisor: Dr. Batric Pesic)
 Cory Sparks, MS MSE, Boise State University (advisor: Dr. Darryl P. Butt)
 Jennifer A. Sundarajan, MS Physics (advisor: Dr. You Qiang)
 Frank Battick, MS NE (advisor: Dr. Batric Pesic)
 Zhikan Zhang, MS MSE (advisor: Dr. Daniel Choi)
 Fahad Khalid, MS MSE (advisor: Dr. Daniel Choi)
 Matt Luke, MS MSE, Boise State University (advisor: Dr. Megan Frary)
 Jamie Jabal, PhD ChE (advisor: Dr. Eric Aston)
 Alberto Castro, MS ME (advisor: Dr. Gabriel Potirniche)
 Kurt Hall, MS ME (advisor: Dr. Gabriel Potirniche)
 Yuxia Zheng, MS MSE (advisor: Dr. Keith Prisbrey)
 Mohammad Faheem, PhD MSE (advisor: Dr. Keith Prisbrey)

Non-credit Classes, Workshops, Seminars, Invited Lectures, etc.:

Served as one of the instructors for the Metallurgical and Materials Engineering Professional Engineer (PE) Licensing Exam Review Course held at the TMS Headquarters in Warrendale, PA, Aug. 24-27, 2016.

Invited Speaker, “Nanostructured Ferritic Steels via Spark Plasma Sintering,” Department of Chemical and Materials Engineering, University of Nevada-Reno, March 18, 2016.

Served as one of the instructors for the Metallurgical and Materials Engineering Professional Engineer (PE) Licensing Exam Review Course held at the TMS Headquarters in Warrendale, PA, Aug. 20-22, 2015.

Invited Speaker: “Spark Plasma Sintering: A Processing Route for Nanostructured Ferritic Steels,” ASM-IIM Visiting Lectureship, Mar. 18 (Indian Institute of Engineering Science & Technology) and Mar. 19 (Indian Institute of Technology – Kharagpur), India, 2015.

Invited Speaker: “Spark Plasma Sintering: A Processing Route for Nanostructured Ferritic Steels,” Interdisciplinary Materials Science & Engineering Seminar, Washington State University, Jan. 24, 2014.

Invited Speaker: “Oxide Dispersion Strengthened Alloys for Advanced Nuclear Reactors,” Mechanical Engineering Seminar Series, Virginia Tech, VA, May 10, 2011.

Invited Speaker: “Solid State Welding Characteristics of Oxide Dispersion Strengthened Alloys,” School of Mechanical and Materials Engineering,” School of Mechanical and Materials Engineering, Washington State University, Dec. 3, 2009.

Invited Researcher/Speaker: “Weldability in ODS Alloys for AFCI/GNEP,” Transmutation Fuel Campaign Meeting, Salt Lake City, Utah, Oct. 27-28, 2008.

Honors and Awards:

University of Idaho Presidential Mid-Career Faculty Award, 2016-2018

ASM-IIM Visiting Lectureship Award, 2014-2015

Outstanding Faculty Award, College of Engineering, University of Idaho, 2013-2014

Alumni Award for Excellence in Mentoring, University of Idaho Alumni Association, 2013

Outstanding Young Faculty Award, College of Engineering, University of Idaho, 2008-2009
Winner of Vidyabharati Prize and Indranil Award for being the first class first in the B.E. class of 1997

SCHOLARSHIP ACCOMPLISHMENTS: Publications (*Dr. Charit's student):

(About 1990 citations; Google Scholar h-index of 18)

Peer Reviewed Journal Papers: 60

- A. Guria* and **I. Charit**, "Tensile Properties of Accident-Tolerant Aluminum-Bearing Ferritic Steels," *Annals of Nuclear Energy*, in press (2016-2017).
- A. Dutt, S. Pasebani*, **I. Charit** and R.S. Mishra, "On the Creep Behavior of Dual-Scale Particle Strengthened Nickel Based Alloy," *Materials Science & Engineering A*, in press (2016-2017).
- S. Sitler, K.S. Raja and **I. Charit**, "ZrB₂-HfB₂ Solid Solutions as Electrode Materials for Hydrogen Reaction in Acidic and Basic Solutions," *Materials Letters*, in press (2016).
- S. Sitler, K.S. Raja and **I. Charit**, "Metal Rich Transition Metal Diborides as Electrocatalysts for Hydrogen Evolution Reactions in a Wide Range of pH," *Journal of Electrochemical Society*, 163 (13) (2016) H1069-H1075.
- T. Shrestha*, M. Basirat, S. Alsagabi*, A. Sittiho*, **I. Charit** and G.P. Potirniche, "Creep Rupture Behavior of Welded Grade 91 Steel," *Materials Science & Engineering A*, 669 (2016) 75-86.
- S. Alsagabi*, J. Ninlachart, K.S. Raja and **I. Charit**, "Passivity and Localized Corrosion of AZ31 Magnesium Alloy in High pH Electrolytes," *Journal of Materials Engineering & Performance*, 25 (6) (2016) 2364-2374.
- S. Sitler, C. Hill*, K.S. Raja and **I. Charit**, "Transition Metal Diborides as Electrode Material for MHD Direct Power Extraction: High Temperature Oxidation of ZrB₂-HfB₂ Solid Solution with LaB₆ Addition," *Metallurgical and Materials Transactions – Energy*, 3E (2016) 90-99.
- S. Pasebani*, **I. Charit**, Y. Wu, J. Burns, K.N. Allahar, D.P. Butt, J.I. Cole, and S.F. Alsagabi, "Lanthana-Bearing Nanostructured Ferritic Steels via Spark Plasma Sintering," *Journal of Nuclear Materials*, 470 (2016) 297-306.
- S. Pasebani*, **I. Charit**, D.P. Butt, J.I. Cole, Y.Q. Wu, J. Burns, "Sintering Behavior of Lanthana-Bearing Nanostructured Ferritic Steel Consolidated via Spark Plasma Sintering," *Advanced Engineering Materials*, 18 (2) (2016) 324-332.
- S. Alsagabi*, **I. Charit** and S. Pasebani*, "The Irradiation Performance and Microstructural Evolution in 9Cr-2W Steel under Ion Irradiation," *Journal of Materials Engineering and Performance*, 25 (2) (2016) 401-408.
- T. Shrestha*, **I. Charit** and G.P. Potirniche, "In-situ Tensile Deformation and Residual Stress Measurement by Neutron Diffraction in Modified 9Cr-1Mo Steel," *Journal of Materials Engineering and Performance*, 24 (2015) 4710-4720.
- M. Basirat, T. Shrestha*, L. Barannyk, G.P. Potirniche, and **I. Charit**, "A Creep-Damage Model for High-Temperature Deformation and Failure of 9Cr-1Mo Steel Weldments," *Metals*, 5 (3) (2015) 1487-1506.
- A. Guria* and **I. Charit**, "Observation of Serrated Flow in APMT™ Alloy," *Materials Letters*, 160 (2015) 55-57.
- S. Pasebani*, **I. Charit** and R.S. Mishra, "Effect of Tool Rotation Rate on Constituent Particles in a

Friction Stir Processed 2024Al Alloy,” *Materials Letters*, 160 (2015) 64-67.

- S. Pasebani*, **I. Charit**, J. Burns, S. Alsagabi, D.P. Butt, J.I. Cole, L.M. Price and L. Shao, “Microstructural Stability of a Self-Ion Irradiated Lanthana-Bearing Nanostructured Ferritic Steel,” *Journal of Nuclear Materials*, 462 (2015) 191-204.
- J. Webb* and **I. Charit**, “Neutronic Effects of Rhenium, Gadolinia and Uranium Dioxide Addition to a Tungsten Based Fast Spectrum Space Reactor,” *Annals of Nuclear Energy*, 79 (2015) 9-17.
- T. Shrestha*, S. Alsagabi*, **I. Charit**, G.P. Potirniche, and M.V. Glazoff, “Effect of Heat Treatment on Microstructure and Hardness of Grade 91 Steel,” *Metals*, 5(1) (2015) 131-149.
- S. Pasebani*, A. Dutt, J. Burns, **I. Charit** and R.S. Mishra, “Oxide Dispersion Strengthened Nickel Based Alloys via Spark Plasma Sintering,” *Materials Science & Engineering A*, 630 (2015) 155-169.
- M.V. Glazoff*, **I. Charit** and P. Sabharwall, “Computational Thermodynamic Modeling of Hot Corrosion of Alloys Haynes 242 and Hastelloy N for Molten Salt Service in Advanced High Temperature Reactors,” *Nuclear Energy Science and Power Generation Technology*, 3 (3) (2014) doi. 10.4172/2325-9809.1000125.
- J. Wang, W. Yuan, R.S. Mishra and **I. Charit**, “An Evaluation of Creep Behavior in Friction Stir Welded MA754 Alloy,” *Journal of Materials Engineering and Performance*, 23 (2014) 3159-3164.
- S. Alsagabi*, T. Shrestha* and **I. Charit**, “High Temperature Deformation Behavior of Grade 92 Steel,” *Journal of Nuclear Materials*, 453 (2014) 151-157.
- J. Webb* and **I. Charit**, “Fabrication of Cermets via Spark Plasma Sintering for Nuclear Applications,” *JOM*, 66 (6) (2014) 943-952.
- S. Pasebani* and **I. Charit**, “Effect of Alloying Elements on the Microstructure and Mechanical Properties of Nanostructured Ferritic Steels Produced by Spark Plasma Sintering,” *Journal of Alloys & Compounds*, 599 (2014) 206-211.
- K. Chitrada, K.S. Raja, B. Pesic, and **I. Charit**, “Corrosion Behavior of Surface Modified Nd-Fe-B Permanent Magnet in Dilute Chloride Environments,” *Electrochimica Acta*, 123 (2014) 23-32.
- T. Shrestha*, S. Gollapudi, **I. Charit**, and K.L. Murty, "Creep Deformation Behavior of Sn-Zn Solder Alloys," *Journal of Materials Science*, 49 (2014) 2127-2135.
- Y. Wu, K.N. Allahar, J. Burns, B. Jaques, **I. Charit**, D.P. Butt, and J.I. Cole, “ODS Alloys via Spark Plasma Sintering: A Combinational Characterization Study by TEM and APT,” *Crystal Research and Technology*, 49 (9) (2014) 645-652.
- J. Wang, W. Yuan, R.S. Mishra, and **I. Charit**, “Microstructural Evolution and Mechanical Properties of Friction Stir Welded ODS Alloy MA754,” *Journal of Nuclear Materials*, 442 (1-3) (2013) 1-6.
- S. Pasebani*, **I. Charit**, Y.Q. Wu, D.P. Butt, and J.I. Cole, “Mechanical Alloying of Lanthana-Bearing Nanostructured Ferritic Steels,” *Acta Materialia*, 61 (2013) 5605-5617.
- K.N. Allahar, J. Burns, B. Jaques, Y.Q. Wu, **I. Charit**, J. Cole and Darryl P. Butt, “Ferritic Oxide Dispersion Strengthened Alloys by Spark Plasma Sintering,” *Journal of Nuclear Materials*, 443 (1-3) (2013) 256-265.
- T. Shrestha*, M. Basirat, **I. Charit**, G. Potirniche and K. Rink, “Creep Rupture Behavior of Grade 91 Steel,” *Materials Science & Engineering A*, 565 (2013) 382-391.

- S. Pasebani*, **I. Charit**, D.P. Butt and J.I. Cole, "A Preliminary Study on the Development of La₂O₃-Bearing Nanostructured Ferritic Steels via High Energy Ball Milling," *Journal of Nuclear Materials*, 434 (1-3) (2013) 282-286.
- J. Wang, W. Yuan, R.S. Mishra, and **I. Charit**, "Microstructure and Mechanical Properties of Friction Stir Welded Oxide Dispersion Strengthened Alloy," *Journal of Nuclear Materials*, 432 (1-3) (2013) 274-280.
- M. Basirat, T. Shrestha*, G. Potirniche, **I. Charit** and K. Rink, "A Study of the Creep Behavior of Modified 9Cr-1Mo," *International Journal of Plasticity*, 37 (2012) 95-107.
- J.A. Webb* and **I. Charit**, "Analytical Determination of Thermal Conductivity of W-UO₂ and W-UN Cermet Nuclear Fuels," *Journal of Nuclear Materials*, 427 (2012) 87-94.
- T. Shrestha*, M. Basirat, **I. Charit**, G. Potirniche, K. Rink and U. Sahaym, "Creep Deformation Mechanisms in Modified 9Cr-1Mo Steel," *Journal of Nuclear Materials*, 423 (2012) 110-119.
- S. Alsagabi* and **I. Charit**, "Fundamental Studies on the Thermal Stability and Mechanical Characteristics of AZ31 Alloy," *Materials Science and Engineering A*, 536 (2012) 64-72.
- J.A. Webb* and **I. Charit**, "Monte Carlo Analysis of Simple Geometries Containing Tungsten-Rhenium Alloys Engrained with Uranium Dioxide and Uranium Mononitride," *Nuclear Engineering and Design*, 241 (8) (2011) 2968-2973.
- C.S. Seok, B. Marple, Y.J. Song, S. Gollapudi, **I. Charit** and K.L. Murty, "High Temperature Deformation Characteristics of Zirlo™ Tubing via Ring Creep and Burst Tests," *Nuclear Engineering and Design*, 241 (2011) 599-602.
- K.L. Murty, S. Gollapudi, and **I. Charit**, "Newtonian Viscous Creep in Metals," *Transactions of the Indian Institute of Metals*, 63 (2-3) (2010) 85-91.
- S. Gollapudi, K. Rajulapati, **I. Charit**, C. Koch, R. Scattergood, and K.L. Murty, "Creep in Nanocrystalline Materials: Role of Stress Assisted Grain Growth," *Materials Science and Engineering A*, 527 (2010) 5773-5781.
- S. Gollapudi, K.V. Rajulapati, **I. Charit**, K.M. Youssef, C.C. Koch, R.O. Scattergood and K.L. Murty, "Understanding Creep in Nanocrystalline Materials," *Transactions of the Indian Institute of Metals*, 63 (2-3) (2010) 373-378.
- I. Charit** and K.L. Murty, "Structural Materials Issues for the Next Generation Fission Reactors," *US Journal of Materials (JOM)*, 62 (9) (2010) 67-74.
- M. Faheem, S. McCormick* and **I. Charit**, "Microstructural and DSC Studies of Alloy 718™ Plus," *Thermochimica Acta*, 496 (2009) 151-155.
- K.L. Murty and **I. Charit**, "Structural Materials for Gen-IV Reactors: Challenges and Opportunities," *Journal of Nuclear Materials*, 383 (1-2) (2008) 189-195.
- S. Gollapudi, V. Bhosle, **I. Charit** and K.L. Murty, "Newtonian Viscous Creep in Ti-3Al-2.5V," *Philosophical Magazine*, 88 (9) (2008) 1357-1367.
- K.L. Murty and **I. Charit**, "Static Strain Aging and Dislocation-Impurity Interactions in Irradiated Mild Steel," *Journal of Nuclear Materials*, 382 (2-3) (2008) 217-222.
- S. Gollapudi, **I. Charit**, and K.L. Murty, "Creep Mechanisms in Ti-3Al-2.5V alloy Tubing Deformed under Closed End Internal Pressurization," *Acta Materialia*, 56 (2008) 2406-2419.

- I. Charit** and R.S. Mishra, "Abnormal Grain Growth in Friction Stir Processed Alloys," Viewpoint Paper, *Scripta Materialia*, 58 (2008) 367-371.
- I. Charit** and K.L. Murty, "Creep Behavior of Niobium-Modified Zirconium Alloys," *Journal of Nuclear Materials*, 374 (2008) 354-363.
- L.B. Johannes, **I. Charit**, R.S. Mishra and R. Verma, "Enhanced Superplasticity via Friction Stir Processing in Continuous Cast AA5083 Al," *Materials Science and Engineering A*, 464 (2007) 351-357.
- G. Srikant, B. Marple, **I. Charit** and K.L. Murty, "Characterization of Stress Rupture Behavior of Commercial-Purity-Ti via Burst Testing," *Materials Science and Engineering A*, 463 (2007) 203-207.
- I. Charit**, C.S. Seok and K.L. Murty, "Synergistic Effects of Interstitial Impurities and Radiation Defects on Mechanical Characteristics of Ferritic Steels," *Journal of Nuclear Materials*, 361 (2007) 262-273.
- K.L. Murty and **I. Charit**, "Texture Development and Anisotropic Deformation of Zircalloys," *Progress in Nuclear Energy*, 48 (2006) 325-359.
- I. Charit** and R.S. Mishra, "Low Temperature Superplasticity in Friction-Stir-Processed Ultrafine Grained Al-Zn-Mg-Sc Alloy," *Acta Materialia*, 53 (2005) 4211-4223.
- A. Dutta, **I. Charit**, L.B. Johannes and R.S. Mishra, "Deep Cup Forming by Superplastic Punch Stretching of Friction Stir Processed 7075 Al Alloy," *Materials Science and Engineering A*, 395 (2005) 173-179.
- I. Charit** and R.S. Mishra, "Evaluation of Microstructure and Superplasticity in Friction Stir Processed 5083 Al alloy," *Journal of Materials Research*, 19 (2004) 3329-3342.
- I. Charit** and R. S. Mishra, "High Strain Rate Superplasticity in a Commercial 2024 Aluminum via Friction Stir Processing," *Materials Science and Engineering A*, 359 (2003) 290-296.
- R.S. Mishra, Z. Y. Ma and **I. Charit**, "Friction Stir Processing: a Novel Technique for Fabrication of Surface Composite," *Materials Science and Engineering A*, 341 (2003) 307-310.
- I. Charit**, R.S. Mishra and M.W. Mahoney, "Multisheet Structures in 7475 Aluminum by Friction Stir Welding in Concert with Post-Weld Superplastic Forming," *Scripta Materialia*, 47 (9) (2002) 631-636.
- I. Charit** and A.H. Chokshi, "Experimental Evidence of Diffusional Creep in the Superplastic 3-mol% Yttria-Stabilized Zirconia," *Acta Materialia*, 49 (2001), 2239-2249.

Textbook:

- K.L. Murty and **I. Charit**, "An Introduction to Nuclear Materials – Fundamentals and Applications," Wiley-VCH, Berlin, Germany (published Feb. 2013)

Edited Book Volume:

- I. Charit, Y.T. Zhu, S.A. Maloy and P.K. Liaw, "Mechanical and Creep Behavior of Advanced Materials," TMS Proceedings Volume, Springer, to be published in Feb. 2017.

Peer-Reviewed Conference Proceeding Papers (Total 34):

- A. Guria*, **I. Charit** and B. Petrovic, "Tensile Deformation Behavior of Al-rich Ferritic Steels for Advanced Light Water Reactors," FIMPART 2015, International Conference on Frontiers in

Materials Processing, Applications Research and Technology (FiMPART'15), Hyderabad, June 12-15, 2015. To be published by a Springer publication in 2016.

- M. Opoku, R. Kanakala and **I. Charit**, "Superplasticity in Ceramics at High Temperature," *Advances in Materials Science for Environmental and Energy Technologies IV: Ceramic Transactions*, Volume 253, John Wiley & Sons, 2015, DOI: 10.1002/9781119190042.
- S. Pasebani*, A.K. Dutt, **I. Charit** and R.S. Mishra, "Nickel-Chromium Alloys: Engineered Microstructure via Spark Plasma Sintering," (Invited) *High & Ultra High Temperature Materials (Intermetallics, Superalloys & Refractory Metals)*, International Conference on Processing & Manufacturing of Advanced Materials (Thermec'13, Dec. 2-6, 2013, Las Vegas, NV, USA); *Materials Science Forum*, Vols. 783-786 (2014) 1099-1104.
- S. Pasebani*, **I. Charit**, K. Allahar, Y.Q. Wu, J. Burns, J. Cole and Darryl P. Butt, "Processing of a Novel Nanostructured Ferritic Steel via Spark Plasma Sintering and Investigation of Its Mechanical and Microstructural Characteristics," *International Workshop on Structural Materials for Innovative Nuclear Systems (SMINS-3)*, Idaho Falls, Idaho, Oct. 7-10, 2013.
- Z. Wuthrich, T. Shrestha*, **I. Charit**, K. Rink, M. Basirat, and G. Potirniche, "Creep Studies and Effects of Heat Treatment on Hardness for a Modified 9Cr-1Mo Steel," *ASME International Mechanical Engineering Congress and Exposition*, Denver, Colorado, USA; November 17, 2011; IMECE2011-63182.
- K.N. Allahar, D.P. Butt, J. Webb*, and **I. Charit**, "Electrochemical Properties of Spark Plasma Sintered Tungsten," *Corrosion 2011*, 15p, NACE, Houston, TX.
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- T. Shrestha*, K. Chitrada*, **I. Charit** and U. Sahaym, "Fabrication of Nanotube-Reinforced Aluminum Composites," *Nanotube Reinforced Metal Matrix Composites II*, Materials Science and Technology 2010, Oct. 17-21, Houston, TX.
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- S. Sitler, K. Raja and **I. Charit**, "High Temperature Oxidation Study of Hafnium and Zirconium Diborides: MHD Electrode Coatings," MS&T16 Poster Session – Processing and Manufacturing, Oct. 25, 2016, Salt Lake City, UT, USA.
- C.D. Hill*, S. Sitler, **I. Charit** and K.S. Raja, "Processing and Characterization of ZrB₂-HfB₂ Solid Solutions for Magnetohydrodynamic (MHD) Applications," 11th International Conference on Ceramic Materials and Components for Energy and Environmental Applications," Vancouver, Canada, June 14-19, 2015 (the corresponding paper to be published in *Ceramics Transactions*).
- S. Pasebani*, A. Dutt, **I. Charit** and R.S. Mishra, "A Novel Route to Process Ni-20Cr Based Alloys for High Temperature Applications," SMD 2014 Technical Division Student Poster Contest, TMS Annual Meeting & Exhibition, San Diego, CA, Feb. 16-20, 2014.
- I. Charit**, M. Bowdon*, S. Pasebani* and S. Alsagabi*, "Accident-Tolrenat Fuel Cladding Materials for Advanced Light Water Reactors," SMD 2014 Technical Division Young Professional Poster, TMS Annual Meeting & Exhibition, San Diego, CA, Feb. 16-20, 2014.
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- S. Pasebani*, **I. Charit**, Y. Wu, J. Burns, J.I. Cole and D.P. Butt, "Spark Plasma Sintering of Lanthana-Bearing Nanostructured Ferritic Steels," Poster PD-42, Microscopy and Microanalysis 2013 Conference, Aug. 4-8, 2013, Indianapolis, IN.
- S. Pasebani*, **I. Charit**, D.P. Butt and J.I. Cole, "Effect of Alloying Elements and Spark Plasma Sintering Parameters on Nano-Dispersion Formation in Nanostructured Ferritic Steels," TMS Annual Meeting, Student Poster Contest, Mar. 3-7, 2013, San Antonio, TX (winner of

graduate student competition in the TMS Structural Materials Division).

- N.D. Jerred*, L. Zirker, **I. Charit**, J. Burns, Y.Q. Wu and J.I. Cole, “Pressure Resistance Welding of HT-9 End-Plugs to Fast Reactor Oxide Dispersion Strengthened Cladding Tubes,” NuMat 2012 (The Nuclear Materials Conference), Oct. 22-25, 2012, Osaka, Japan.
- C. Sparks, L. Ward, J. Youngsman, J. Webb*, S. Howe, N. Jerred*, M. Frary, **I. Charit** and D. Butt, “Spark Plasma Sintering of Tungsten-Rhenium Alloys for Very High Temperature Reactor Applications,” Poster Presentation under the track ‘*Environmental and Energy Issues*,’ Materials Science and Technology 2010, Oct. 17-21, Houston, TX.
- R. Prabhakaran*, D. Burkes, A. Robinson, J.-F. Jue, A. Demint, J. Gooch, D. Keiser, D. Wachs, J. Cole, and **I. Charit**, “An Investigation of the Mechanical Properties of Fresh and Irradiated U-Mo Fuels,” *ANS Annual Meeting*, San Diego, CA, June 13-17, 2010.
- R. Prabhakaran*, J. Wang, W. Yuan, K. Chitrada*, J. Cole, **I. Charit**, and R.S. Mishra, “Friction Stir Welding of Oxide Dispersion Strengthened Alloys,” *ANS Annual Meeting*, San Diego, CA, June 13-17, 2010.
- T. Shrestha*, S. Gollapudi, **I. Charit** and K.L. Murty, “Creep Behavior of Sn-Zn Solder Alloys,” *Lead-Free Solders and Emerging Interconnect and Packaging Technologies*, *ANS Annual Meeting*, San Diego, CA, June 13-17, 2010.

Grants and Contracts Awarded:

Current and Past Extramural Grants and Contracts: \$3.55 million as PI

- “A Science Based Approach for Selecting Dopants in FCCI-Resistant Metallic Fuel Systems,” Nuclear Energy University Programs (NEUP), DOE Office of Nuclear Energy; **I. Charit** (PI), S. Choudhury (Co-PI); R. Mariani and M. Benson, Idaho National Laboratory (Co-PIs); Project Period: Oct. 1, 2016 to Sep. 30, 2019; Total Funding: \$800,000.
- “Microscale Technique to Evaluate Grain Boundary Cohesion of Irradiated Alloys,” Idaho National Laboratory LDRD; PI: Xianming Bai (INL). Co-PIs: J. Wharry (Boise State University), R. Fertig (University of Wyoming), **I. Charit** (University of Idaho), W. Jiang (INL); Project Period: 5/1/2016 to 9/30/2018; Total Funding: \$150,000 (Charit portion).
- “Characterization of Creep-Fatigue Crack Growth in Alloy 709 and Prediction of Service Lives in Nuclear Reactor Components,” US DOE Nuclear Energy University Programs (NEUP); PI: G.P. Potirniche, Co-PIs: R. Stephens, **I. Charit**, A. Tokuhiko (Purdue University), M. Glazoff (Idaho National Laboratory); Project Period: 10/1/2015 to 9/30/2018; Total Funding \$799,927 (Charit funding: \$100,000).
- “Acquisition of a FEI Scios Electron Microscope,” Murdock Charitable Foundation, PI: S. Ay, Co-PIs: I. Charit, T. Williams, G. Potirniche, F. Barlow, D. McIlroy, H. Saied, M. Gunter; Project Period: 1/1/2015 to 1/1/2018; Total Funding: \$444,377.
- “Boride-Based Electrode Materials with Enhanced Stability under Extreme Conditions for MHD Direct Power Extraction,” University Coal Research Program, National Energy Technology Laboratory (NETL) through US DOE Office of Fossil Energy; PI: **I. Charit**, co-PI: K.S. Raja (University of Idaho); Project Period: 7/1/2014 to 6/30/2017; Total Funding \$399,938 (Charit: \$199,969).
- “Integral Inherently Safe Light Water Reactor (I²S-LWR),” Integrated Research Program (IRP), Nuclear Energy University Programs; PI: B. Petrovic (Georgia Tech), co-PIs: F. Rahnema (Georgia Tech), A. Manera (University of Michigan), P. Ferroni (Westinghouse), A. Haghghat (Virginia Tech), W. Hines and B. Upadhyaya (University of Tennessee), **I. Charit**

(**University of Idaho**), L. Muldrow (Morehouse College), A. Ougouag (Idaho National Laboratory), R. Cocherell (Southern Nuclear), G. Parks (University of Cambridge, UK), M. Ricotti (Italy); Project Period: 2/11/2013 to 9/30/2016; Total funding to Charit: \$147,910.

- “Studying the Microstructural Characteristics of Nuclear Fuels,” Battelle Energy Alliance, PI: **I. Charit**, Project Period - 8/18/2012 to 9/30/2013, Total Funding: \$92,547.
- “TAOI B - Computational Microstructural Optimization Design Tool for High Temperature Structural Materials,” University Coal Research Program, National Energy Technology Laboratory (NETL) through US DOE Office of Fossil Energy; PI: R.S. Mishra, University of North Texas; co-PI: **I. Charit**, Project Period: 9/1/2012 to 8/30/2014, Total Funding: \$300,000 (Charit portion: \$120,000).
- “Course Modules on Management of Aging Power Plant Components and Systems for Enhancement of Nuclear Engineering Program,” US Nuclear Regulatory Commission (NRC) – Curriculum Development Program; PI: Krishnan S. Raja, co-PIs: **I. Charit**, B. Pesic; Project Period: 4/1/2012 to 8/31/2013; Total Funding: \$200,004 (Charit portion: \$66,001).
- “Undergraduate support by the University of Idaho for Microstructural Characterization of Spark Plasma Sintered Tungsten,” Idaho National Laboratory, PI: **I. Charit**, Project Period: 10/17/2011 to 06/15/2012, Total Funding: \$6,123.
- “Request to enhance the Experimental and Computational Capabilities to Support Nuclear Energy Research and Development,” Nuclear Energy University Programs (NE-UP) Infrastructure Grant, Project Period: 8/31/2010 to 8/30/2011; PI: A. Tokuhiko, co-PIs: G. Potirniche, C. Wai and **I. Charit**; Total Funding: \$250,000 (Charit portion: \$40,000).
- “Fabrication of Advanced ODS Alloys Using Field Assisted Sintering,” Idaho National Laboratory LDRD Program; PI: J. Cole (Idaho National Laboratory), co-PIs: **I. Charit** and D.P. Butt (Boise State University), Project Period: 3/18/2010 to 9/30/2012, Total Funding to Charit: \$234,122.
- “Fabrication of Tungsten-Rhenium Cladding Materials via Spark Plasma Sintering for Ultra-High Temperature Reactor Applications,” Department of Energy through FY2009 Nuclear Energy University Program (NE-UP); PI/Project Director: **I. Charit**, co-PIs: Darryl P. Butt (Boise State University) and Mark Carroll (Idaho National Laboratory); 10/1/2009 to 9/30/2012, Total Funding: \$682,258 (Charit portion: \$336,122).
- “Prediction and Monitoring Systems of Creep-Fracture Behavior of 9Cr-1Mo Steels for Reactor Pressure Vessels,” Department of Energy through FY2009 NE-UP Program, PI: Gabriel Potirniche, co-PIs: **I. Charit**, Karl Rink, Fred Barlow, Project Period - 10/1/2009 to 8/31/2013, Total Funding to UI: \$503,188 (Charit portion: \$117,242).
- “Mechanical Properties of Nuclear Fuels,” Battelle Energy Alliance, PI: **I. Charit**, Program Manager: Rory Kennedy (Idaho National Laboratory), Project Period - 8/25/2008 to 8/17/2012, Total Funding to Charit: \$319,101.
- “Request for Graphite and Related Material Characterization Instrumentation in Support of NGNP and Advanced Reactor System,” NE-UP Infrastructure Program, 7/15/2009 to 7/14/2010, PI: A. Tokuhiko, co-PIs: V. Utgikar, **I. Charit**, S. Phongikaroon, Total Funding: \$177,000 (Charit portion: \$44,250).
- “A Comparative Study of Welded ODS Cladding Materials for AFCI/GNEP Applications,” US DOE Office of Nuclear Energy (Advanced Fuel Cycle Initiative); PI: **I. Charit**, co-PIs: D.P. Butt (Boise State University), R.S. Mishra (University of Missouri-Rolla), K. Linga Murty (North Carolina State University), J. Cole, M. Meyer, L. Zirker (Idaho National Laboratory) and M.

Woltz (Centerline Limited); Project period - 10/1/2008 to 9/30/2010; Total Funding: \$458,762 (Charit portion: \$166,661).

“Fuel Fabrication Using Friction Bonding Process to Support the RERTR Program,” Idaho National Laboratory, PI: **I. Charit**, Technical Monitors: D. Keiser, Jr. and Douglas Burkes (Idaho National Laboratory), Project Period: 5/15/2008 to 5/31/2009, Total Funding to Charit: \$11,704.

“Acquisition of a Simultaneous Thermal Analyzer for GNEP (Global Nuclear Energy Partnership) Research and Training at University of Idaho,” US DOE Office of Nuclear Energy (GNEP University Readiness Program), PI: **I. Charit**, Project Period: 8/30/2007-2/29/2008, Total Funding: \$99,945

“Studying Radiation Effects on Alloys,” Idaho National Laboratory, PI: **I. Charit**, Project Period: 8/15/2007 to 8/31/2008, Technical monitor: Douglas Burkes (INL), Total Funding: \$70,799.

User-Facility Projects: No dollar value assigned to these projects

“Microstructural and Nanomechanical Characterization of a Lanthana-Bearing Nanostructured Ferritic Steel Irradiated with High Dose Iron,” PI: I. Charit; Co-PIs: L. Shao (Texas A&M), J. Burns (Center for Advanced Energy Studies), Project Granted: Nov. 2014.

“Microstructural and Mechanical Characterization of Self-Ion Irradiated Grade 92 Steel,” ATR-NSUF-RTE Program, PI: I. Charit, Project Granted: Oct. 2013.

“Microstructural and Mechanical Characterization of Self-Ion Irradiated 14LMT Nanostructured Ferritic Steels,” ATR-NSUF-RTE Program, PI: I. Charit, Project Granted: Oct. 2013.

“Advanced Microstructural Characterization of Spark Plasma Sintered Lanthanum-Bearing Nanostructured Ferritic Steels,” ATR National Scientific Users Facility (ATR-NSUF) program, PI: I. Charit, Project Granted: April 2013.

“Studying the Role of Alloying Elements on the Microstructure of Nanostructured Ferritic Steels Fabricated via Pulsed Electric Current Sintering,” ATR National Scientific User Facility Program, PI: **I. Charit**, co-PI: Darryl P. Butt and Kerry Allahar, Project Period: Sep. 1, 2012 to Feb. 28, 2013.

“Microstructural Study of Ion Irradiated 14LMT Nanostructured Alloys,” ATR National Scientific Users Facility Program, PI: **I. Charit**, Project Period: 6/2011-6/2012.

“Small Angle Neutron Scattering Studies of Grade 91 Steel,” Lujan Center (the Neutron Scattering Center at the Los Alamos National Laboratory), PI: **I. Charit**, Oct. 2010.

“Influence of Fast Neutron Irradiation on the Mechanical Properties and Microstructure of Nanostructured Metals/Alloys,” PI: K.L. Murty, co-PI: **I. Charit**, ATR National Scientific Users Facility (NSUF) grant, Project Period: 4/2008 - Present).

Internal Grants:

“Greening ‘Materials Fabrication’ at the University of Idaho,” Sustainable Idaho Greening the Curriculum Initiative, Project Period: 4/20/2009 to 5/15/2010, PI: **I. Charit**, Total Funding: \$1,995.

“Advanced Nanotube-Reinforced Metal Matrix Composites via Mechanical Milling,” NASA-Idaho EPSCoR Collaboration Grant, Project period: 8/1/2008 to 7/31/2009, PI: **I. Charit**, Funding: \$3,889.

“Request for a Travel Grant for Initiating a Cold Spray Research Program,” PI: **I. Charit**, University of Idaho Small Travel Grant Program, Total Funding: \$900 (PI portion at UI 100%).

SERVICE:

Major Intra-University Committee Assignments:

Reviewer and Panelist, University of Idaho Seed Grant Competition, Spring 2016.

Member, Chemical Engineering Faculty Search Committee, August 2015 to April 2016.

Chair, Promotion and Tenure Committee of Dr. Krishnan Raja, Department of Chemical and Materials Engineering (Fall 2015).

Member, Nuclear Engineering Director Search and Faculty Search Committees, and of Chemical & Materials Engineering Faculty (Electronic Materials) Search (2014-2015)

Graduate Program Coordinator, Materials Science & Engineering Program (2013-present)

Member, University Committee on Committees (Fall 2014-present)

Member, ‘Mech. Engr./Nuc. Engr. Faculty Search’ and ‘Chemical and Materials Engineering Faculty Search – Energy Materials’ committees (2011-2012)

Chair, MSE ABET committee of the UI Chemical and Materials Engineering dept. (since Fall 2010)

Member, College of Engineering Bylaws committee (since Fall 2010)

Member, University Library Affairs Committee (since Fall 2010 – Spring 2014)

MSE Representative of the College Curriculum Committee, College of Engineering, University of Idaho, Fall 2007 - Summer 2009

Member of the Graduate Faculty, University of Idaho, 2007 - Present

Member of Faculty Tenure Review Committee for Daniel Choi, MSE, Fall 2011

Membership in Professional and Scholarly Organizations:

Professional Engineer (Licensed in Idaho), Dec. 2013 - Present

American Society for Materials (ASM International), 2001 - Present

Member, The Minerals, Materials and Metals Society (TMS); 2001- Present; Vice Chair (2013-2015) and Chair (2015-2017) of the TMS Nuclear Materials Committee; also a member of TMS Mechanical Behavior of Materials committee

American Nuclear Society (ANS), 2006 - Present

Association for Iron and Steel Technology (AIST); 2007 - 2013

American Ceramic Society (ACerS), 2001 - 2013

Other Professional Services:

Technical Symposium Organization / Chairing Sessions:

Plasticity-2016 advisory committee member and the lead organizer of the mini-symposium, “Creep, Deformation, Texture, Nano and Nuclear Materials IV (in honor of K.L. Murty),” Jan. 2-9, 2016, Kona, Hawaii.

Lead organizer of the symposium, “Advanced Powder Processing for Energy Applications,” held during the Materials Science & Technology Conference (MS&T2015) in Columbus, Ohio, Oct. 7-8, 2015. Some papers of the proceedings published in the *Metallurgical and Materials Transactions E* journal.

Served as a session chair, Materials and Fuels for the Current and Advanced Nuclear Reactors III – Structural Materials IV, Morning Session, 2014 TMS Annual Meeting & Exhibition, San Diego, CA, Feb. 16-20, 2014.

Member, Technical Executive Committee, Thermec 2013 (Dec. 2-6, 2013), Las Vegas, NV.

Co-organizer of the symposium, “Functional and Innovative Composites,” held during the Materials Science and Technology Conference at Pittsburgh in October of 2012.

Lead organizer of the symposium, “Nanotube Reinforced Metal Matrix Composites II,” to be held during the Materials Science and Technology Conference at Houston, October 18-21, 2010.

Lead organizer for the symposia, “Nanoscale Design of Materials for Extreme Radiation Environments,” and “Nanotube Reinforced Metal Matrix Composites” held during the Materials Science and Technology Conference at Pittsburgh in October of 2008.

Reviewer Duties:

Journal Reviewer Duties:

Metallurgical and Materials Transactions A, Metallurgical and Materials Transactions – Energy (E), Nuclear Technology, Surface and Coatings Technology, Journal of Nuclear Materials, Journal of Alloys and Compounds, Materials Science & Engineering A, Journal of Materials Research, JOM, Nature Communications, Journal of Thermal Spray Technology, Steel Research International, Fusion Engineering & Design, Philosophical Magazine; Materials Characterization; Composites A; Journal of Materials Engineering & Performance; Materials Letters

Research Proposal Review:

US Department of Energy - Office of Nuclear Energy (Nuclear Energy University Programs) and ATR Nuclear Science User Facility, US National Science Foundation, Georgian National Science Foundation, Indo-US Science and Technology Forum, US Civilian Research and Development Fund (US-CRDF); DOE Office of Science SBIR program

Book Proposal Review:

Springer (2013); Cambridge University Press (2014, 2016); John Wiley (2015); Elsevier (2016)

Outreach Service:

Faculty Advisor, Material Advantage Chapter, University of Idaho, 2007-2013

MSE Visitation Faculty Coordinator, University of Idaho, 2007 – Present

Provided two-week long laboratory internship opportunities to the ‘Upper Bound Math & Science’ program in 2010 and 2011 and gave lab tours in 2012.

Community Service:

Participated in the College of Engineering ThinkTank seminars, continuously since Fall 2011.

Participated in other events such as ‘Envision Idaho’ and ‘Women in Engineering’ events as the MSE representative since 2012

Honors and Awards:

Elected as a ‘**key reader**’ to serve on the *Board of Review* of the journal from March 2008 to present.

PROFESSIONAL DEVELOPMENT:

Teaching related:

Export Control Workshop, UI Office of Research Assurances, University of Idaho, April 7, 2016.

Program Assessment Workshop, Academic Affairs, University of Idaho, Feb. 26, 2013

BbLearn Hands-on Workshop, UI Information Technology Services, May 2, 2012

Best Practices in Teaching Graduate Seminars, Brown Bag Lunch Meeting, College of Graduate Studies, University of Idaho, Oct. 26, 2009

Mentorship Workshop, NC State University, Raleigh, NC, March 20, 2006

Automotive Workshop, Strategic Issues – Research and Development, NC State University, Raleigh, NC, March 6-7, 2006

Scholarship related:

Attended CAES Materials, Modeling, Simulation and Visualization Workshop, May 13-14, 2015, McCall, Idaho.

Attended the American Nuclear Society Annual Meeting, Atlanta, Georgia, June 17-20, 2013.

FY2011 Nuclear Energy University Program Workshop, Rockville, Maryland, July 27-28, 2010.

Institute of Science & Technology (INEST) Workshop on Stress Corrosion Cracking, Center for Advanced Energy Studies, Idaho Falls, ID, June 8-9, 2010.

FCRD Advanced Materials Development Working Group Meeting, University of California – Santa Barbara, March 23-25, 2010.

FY2010 Nuclear Energy University Program Workshop, Salt Lake City, Utah, Aug. 13-14, 2009.

Planning Grant Meeting, Radioactive Materials Processing Center (RAMP-C), A National Science Foundation Industry/University Cooperative Research Center (NSF IUCRC), Idaho Falls, ID, June 25-26, 2009 (invited).

Advanced Test Reactor (ATR) National Scientific User Facility Workshop, Idaho Falls, ID, June 1-5, 2009.

FY2009 Nuclear Energy University Program Workshop, Bethesda, MD, Aug. 19-20, 2008

TMS Annual Meeting, New Orleans, LA, March 2008

CAES Integration Meeting, Idaho Falls, ID, October 18, 2007

Global Nuclear Energy Partnership (GNEP) Materials Workshop, Oak Ridge National Laboratory, TN, Oct. 11-13, 2007

Cold Spray Conference, Akron, OH, Oct. 8-9, 2007

Global 2007 Conference, Boise, Idaho, Aug. 9-12, 2007

Second ACE (Academic Center for Excellence) Fuel Cycle Workshop, Boise, ID, May 8-9, 2007

Service Related

Completed all UI service related online training programs