

# MARAT KHAFIZOV, Ph. D.

The Ohio State University  
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## EDUCATION

Ph.D.	2008	Physics	University of Rochester, Rochester, NY, USA
M.A.	2003	Physics	University of Rochester, Rochester, NY, USA
B.S.	2001	Physics	Middle East Technical University, Ankara, Turkey

## PROFESSIONAL APPOINTMENTS

Assistant Professor	08/2014-current	Department of Mechanical and Aerospace Engineering, Nuclear Engineering Graduate Program The Ohio State University, Columbus, OH, USA
Staff Scientist	03/2010-08/2014	Department of Materials Science and Engineering, Idaho National Laboratory, Idaho Falls, ID, USA
Postdoctoral Scholar	12/2007-02/2010	Department of Chemistry, University of Rochester, Rochester, NY, USA
Research Associate	06/2002-11/2007	Laboratory for Laser Energetics, University of Rochester, Rochester, NY, USA

## RESEARCH SUMMARY

### **The Ohio State University, Assistant Professor (08/2014-current)**

Thermal Properties of Materials for Extreme Environments (DOE, NRC)

- Development of laser based physical property characterization techniques for investigation of radiation damage and microstructure evolution in ceramics
- Nondestructive evaluation using infrared thermography and ultrasonic testing
- Understanding the role of microstructure on physical properties of ceramics
- In-pile and in-situ measurement of microstructure and physical properties

### **Idaho National Laboratory, Staff Scientist (03/2010–08/2014)**

Center for Materials Science of Nuclear Fuel (DOE BES)

- Investigation of the influence of irradiation induced microstructure on thermal transport in uranium oxide
- Implementation of classical thermal transport models to understanding of thermal conductivity degradation in nuclear fuel
- Influence of defect segregation at grain boundaries in metal oxides on thermal transport

Development of laser based non-destructive evaluation techniques (DOE NE)

- Development of thermal conductivity microscope for thermal transport characterization of nuclear materials using laser based modulated thermoreflectance approach
- Implementation of picoseconds acoustics to the measurement of elastic mechanical properties

Corrosion in nuclear reactor metals (DOE LDRD)

- Investigation of the role tetragonal and monoclinic oxide phases using micro-Raman spectroscopy and phase-field modeling on breakaway oxidation of Zircalloys
- Investigation the role of stress on the initial oxidation in zirconium using second harmonic generation and *ab-initio* calculations
- Development of laser based thermal wave imaging technique to characterize intergranular corrosion in metal alloys

**University of Rochester, Postdoctoral Scholar**

**(12/2007–02/2010)**

Exciton dynamics in low-dimensional systems (DOE, NSF)

- Exciton dynamics in single-walled carbon nanotubes (SWNT) using transient absorption spectroscopy measurement on single chirality enriched SWNTs
- Investigation of multiple exciton generation phenomena in SWNT for photovoltaic solar cells

**University of Rochester, Research Assistant**

**(06/2002–11/2007)**

Photoresponse mechanism of superconducting materials (ONR, NSF)

- Nonequilibrium quasiparticle dynamics in superconducting MgB<sub>2</sub> thin films and single crystals utilizing time resolved ultrafast pump probe spectroscopy
- Photoelectric response in current-biased MgB<sub>2</sub> microbridge structures

### SYNERGISTIC ACTIVITIES

- Manuscript reviewer for *Physical Review Letters*, *Journal of Applied Physics*, *Scientific Reports*, *Journal of American Ceramic Society*, *Acta Materialia*, *ACS Nano*, *International Journal of Thermal Sciences*, *Thin Films*, *Journal of Raman Spectroscopy*, *Journal of Nuclear Materials*, *IEEE Transactions on Nuclear Science*, and *Nuclear Instruments and Methods B*.
- Grant reviewer for DOE SBIR, DOE NEUP, and NSF
- Organizer of “Big Data for Nuclear Power Plants?” annual workshop (2017, 2018, 2019)
- Session organizer for 2015 Fall MRS annual meetings: *Phonon Transport, Interactions and Manipulations in Nanoscale Materials and Devices—Fundamentals and Applications*
- Session organizer for 2017 TMS Annual Meeting: *Ceramic Materials for Nuclear Energy Research and Applications*
- Session organizer for 2020 TMS Annual Meeting: *Thermal Transport in Crystalline and Non-crystalline Solids: Theory and Experiments*
- Session organizer for 2021 TMS Annual Meeting: *Thermal Property Characterization, Modeling, and Theory in Extreme Environments*
- Guest editor for special issues in *Nuclear Technology* and *Progress in Nuclear Energy*
- Executive Member in the Nuclear Materials Committee of the Minerals, Metals and Materials Society
- Member of the Materials Research Society, American Nuclear Society, and the Minerals, Metals & Materials Society

### TEACHING EXPERIENCE

- NE 4505/ ME 4505 Introduction to Nuclear Science and Engineering
- NE 6536/ ME 6536 Nuclear Reactor Systems and Analysis
- NE 6537 Nuclear Reactor Thermal Hydraulics
- NE 6750 Nuclear Materials and Irradiation Effects
- NE 6766 Nuclear Engineering Design
- ME 7230 Advanced Dynamics

### GRADUATE STUDENT ADVISING

- Maha Yazbeck (current), M. S. student in Mechanical Engineering
- Vinay S. Chauhan (current-202), Ph. D. Mechanical Engineering
- Yuzhou Wang (2015-2019), Ph. D. Nuclear Engineering
- Kevin Agarwal (2019), M. S. Mechanical Engineering
- John Leanza (2019), M. A. Mechanical Engineering
- M. Faisal Riyad (2017), M. S. Mechanical Engineering
- Ryan Gallagher (2017), M. A. Nuclear Engineering

### UNDERGRADUATE STUDENT ADVISING

- Andrew Meier (2020), B. S. Chemical Engineering
- Thomas Martin (2017-2019), B. S. Aerospace Engineering
- Cole Harlow (2019), B. S. Engineering Physics
- Joshua Rochelau (2018-2019), B.S. Mechanical Engineering
- Nathaniel Hang (2017), B. S. Chemical Engineering

### POSTDOC ADVISING

- Yuzhou Wang (2019-current)
- Gaofeng Sha (2017-2019)

### PUBLICATIONS

1. “Imaging grains in a model ceramic energy material with optically generated coherent acoustic phonons”, Yuzhou Wang, David H Hurley, Zilong Hua, Thomas Pezeril, Samuel Raetz, Vitaliy E Gusev, Vincent Tournat, Marat Khafizov, *Nature Communications* **11**, 1597 (2020)
2. “Combining mesoscale thermal transport and x-ray diffraction measurements to characterize early-stage evolution of irradiation-induced defects in ceramics”, M. Khafizov, M. F. Riyad, Y. Wang, J. Pakarinen, L. He, T. Yao, A. El-Azab, D. H. Hurley, *Acta Materialia* **193**, 61 (2020)
3. “Thermal transport and optical spectroscopy in 710-MeV Bi ion irradiated LiF crystals”, A. Koshkinbayeva, A. Abdullaev, Z. Nurekeyev, V. A. Skuratov, Y. Wang, M. Khafizov, Z. Utegulov, *Nucl. Instrum. Meth. B* **475**, 14 (2020)
4. “In-situ measurement of irradiation behavior in LiNbO<sub>3</sub>”, G. Sha, C. Harlow, A. Chernatynskiy, J. Daw, M. Khafizov, *Nucl. Instrum. Meth. B* **472**, 46 (2020)

5. "Simultaneous characterization of cross- and in-plane thermal transport in insulator patterned by directionally aligned nano-channels", V. S. Chauhan, A. Abdullaev, Zh. Utegulov, J. O'Connell, V. Skuratov, and M. Khafizov, *AIP Advances* **10**, 015304 (2020)
6. "Thermal transport across nanoscale damage profile in sapphire irradiated by swift heavy ions: picosecond time domain thermorefectance" A. Abdullaev, B. Muminov, V. S. Chauhan, J. O'Connell, V. A. Skuratov, M. Khafizov and Z. N. Utegulov, *Journal of Applied Physics* **127**, 035108 (2020)
7. "Determining local thermal transport in a composite uranium-nitride/silicide nuclear fuel using square-pulse transient thermorefectance technique", S. Middlemas, Z. Hua, V. Chauhan, W. T. Yorgason, R. Schley, A. Khanolkar, M. Khafizov, D. Hurley, *Journal of Nuclear Materials* **528**, 151842 (2020)
8. "Impact of irradiation induced dislocation loops on thermal conductivity in ceramics", Marat Khafizov, Janne Pakarinen, Lingfeng He, and David H. Hurley, *Journal of American Ceramic Society* **102**, 7533 (2019)
9. "Nondestructive characterization of polycrystalline 3D microstructure with time-domain Brillouin scattering", Yuzhou Wang, David H. Hurley, Zilong Hua, Gaofeng Sha, Samuel Raetz, Vitali E. Gusev, Marat Khafizov, *Scripta Materialia* **166**, 34 (2019)
10. "Foreword: Special Section on Big Data for Nuclear Power Plants", Carol Smidts and Marat Khafizov, *Nuclear Technology* 205, iii (2019)
11. "Implementation of a multilayer model for measurement of thermal conductivity in ion beam irradiated samples using a modulated thermorefectance approach", F. Riyad, V. Chauhan, and M. Khafizov, *J. Nucl. Mater.* **509**, 134 (2018)
12. "Calculated thermodynamic properties of GdCl<sub>3</sub> in LiCl-KCl eutectic molten salt", W. Zhou, Y. Wang, J. Zhang, M. Khafizov, *J. Nucl. Mater.* **508**, 40 (2018)
13. "Characterization of Ultralow Thermal Conductivity in Anisotropic Pyrolytic Carbon Coating for Thermal Management Applications", Y. Wang, D. H. Hurley, E. P. Luther, M. F. Beaux II, D. R. Vodnik, R. J. Peterson, B. L. Bennett, I. O. Usov, P. Yuan, X. Wang, M. Khafizov, *Carbon* **129**, 476 (2018)
14. "Thermal conductivity degradation and microstructural damage characterization in low dose ion beam irradiated 3C-SiC", V. Chauhan, M. F. Riyad, X. Du, C. Wei, B. Tyburska-Püschel, J.-C. Zhao, and M. Khafizov *Metall. Trans. E.* **4**, 61 (2017)
15. "Investigation of thermal transport in composites and ion beam irradiated materials for nuclear energy applications", M. Khafizov, V. Chauhan, Y. Wang, F. Riyad, N. Hang, and D. H. Hurley *J. Mater. Res.* **32**, 204 (2017)
16. "Subsurface imaging of grain microstructure using picosecond ultrasonics", M. Khafizov, J. Pakarinen, L. He, H.B. Henderson, M.V. Manuel, A.T. Nelson, B.J. Jaques, D.P. Butt, D.H. Hurley, *Acta Materialia* **112**, 209 (2016)
17. "Local measurement of thermal conductivity and diffusivity", D. H. Hurley, R. S. Schley, M. Khafizov, B. L. Wendt, *Rev. Sci. Instrum.* **86**, 123901 (2015)
18. "Microstructure changes and thermal conductivity reduction in UO<sub>2</sub> following 3.9 MeV He<sup>2+</sup> ion irradiation", J. Pakarinen, M. Khafizov, L. He, C. Wetteland, J. Gan, A. T. Nelson, D. H. Hurley, A. El-Azab, T. R. Allen, *J. Nucl. Mater.* **454**, 283 (2014)
19. "Measurement of thermal conductivity in proton irradiated silicon", M. Khafizov, C. Yablinsky, T. Allen, D. Hurley, *Nucl. Inst. Meth. B* **325**, 11 (2014)
20. "Thermal conductivity in nanocrystalline ceria thin films", M. Khafizov, I. Park, A. Chernatynskiy, J. Lin, J. J. Moore, D. Swank, T. Lillo, S. R. Phillpot, A. El-Azab, D. Hurley, *J. Amer. Ceram. Soc.* **97**, 562 (2014)

21. "Kapitza resistance of Si/SiO<sub>2</sub> interface", B. Deng, A. Chernatynskiy, M. Khafizov, D.H. Hurley, S.R. Phillpot, *J. Appl. Phys.* **115**, 084910 (2014)
22. "Effect of surface strain on oxygen adsorption on Zr (0 0 0 1) surface", X. Wang, M. Khafizov, I. Szlufarska, *J. Nucl. Mater.* **445**, 1 (2014)
23. "Transformations and Cracks in Zirconia Films Leading to Breakaway Oxidation of Zircaloy", H. El Kadiri, Z. N. Utegulov, M. Khafizov, M. Asle Zaeem, M. Mamivand, A.L. Oppedal, K. Enakoutsu, M. Cherkaoui, R. G. Graham, A. Arockiasamy, *Acta Materialia* **61**, 3923 (2013)
24. "Grain Growth and Mechanical Properties of Cerium Oxide Films Deposited on Si(100) Substrates by Pulsed Magnetron Sputtering (PMS)", I.-W. Park, J. Lin, J. J. Moore, M. Khafizov, D. Hurley, M. V. Manuel and T. Allen, *Surface Coatings and Technology* **217**, 34 (2013)
25. "Parametric study of the frequency-domain thermoreflectance technique", C. Xing, C. Jensen, Z. Hua, H. Ban, D. H. Hurley, M. Khafizov, and J. R. Kennedy, *J. Appl. Phys.* **112**, 103105 (2012)
26. "Spatially localized measurement of thermal conductivity using a hybrid photothermal technique", Z. Hua, H. Ban, M. Khafizov, R. Schley, R. Kennedy, and D. H. Hurley, *J. Appl. Phys.* **111**, 103505 (2012);
27. "Measurement of thermal transport using time-resolved thermal wave microscopy", M. Khafizov and D. H. Hurley, *J. Appl. Physics* **110**, 083525 (2011)
28. "Effects of internal stresses and intermediate phases on the coarsening of coherent precipitates: A phase-field study", M. Asle Zaeem, H. El Kadiri, M.F. Horstemeyer, M. Khafizov, Z. Utegulov, *Current Applied Physics*, **12**, 570 (2012)
29. "Measurement of the Kapitza resistance across a bicrystal interface", D. H. Hurley, M. Khafizov, S. L. Shinde, *J. of Appl. Physics* **109**, 083504 (2011)
30. "Multiple Exciton Generation in Single-walled Carbon Nanotubes", S. Wang, M. Khafizov, X. Tu, M. Zheng, T. D. Krauss, *Nano Lett.* **20**, 2381 (2010)
31. "Ultrafast Photoresponse of Superconductor/Ferromagnet Nano-Layered Hybrids", G. P. Pepe, D. Pan, V. Pagliarulo, L. Parlato, N. Marrocco, C. De Lisio, G. Peluso, A. Barone, U. Scotti di Uccio, A. Casaburi, F. Tafuri, M. Khafizov, T. Taneda, R. Sobolewski, *IEEE Trans. Appl. Superconductivity* **19**, 376 (2009)
32. "Nano-layered ferromagnet/superconductor heterostructures: nonequilibrium quasiparticle dynamics and photodetector applications", D. Pan, G. P. Pepe, V. Pagliarulo, C. De Lisio, L. Parlato, M. Khafizov, I. Komissarov, and Roman Sobolewski, *Phys. Rev. B.* **78**, 174503 (2008)
33. "Mechanism of light detection by superconducting current-biased MgB<sub>2</sub> microbridges", M. Khafizov, X. Li, Y. Cui, X. X. Xi, and R. Sobolewski, *IEEE Trans. Appl. Superconductivity* **17**, 2867 (2007)
34. "Ultrafast Photoresponse Dynamics of Current-biased Hg-Ba-Ca-Cu-O Superconducting Microbridges", X. Li, M. Khafizov, R. Sobolewski, S. Chromik, V. Strbik, M. Valerianova, P. Odier, *IEEE Trans. Appl. Superconductivity* **17**, 3648 (2007)
35. "Photomixers fabricated on nitrogen-ion-implanted GaAs", M. Mikulics, M. Marso, I. Cámara Mayorga, R. Güsten, S. Stancek and P. Kovac, Xia Li, M. Khafizov, R. Sobolewski, E. A. Michael, R. Schieder, M. Wolter, D. Buca, A. Förster, P. Kordo, and H. Lüth, *Appl. Phys. Lett.* **87**, 041106 (2005)

36. “Picosecond dynamics of the superconducting state in MgB<sub>2</sub>” Y. Xu, M. Khafizov, L. Satrapinsky, P. Kús, A. Plecenik, J. Karpinski, J. Jun, S. M. Kazakov and Roman Sobolewski, *Physica C: Superconductivity*, **408-410**, 90 , (2004)
37. “Femtosecond optical characterization of MgB<sub>2</sub> superconducting thin films”, Xu Y, Khafizov M, Plecenik A, Kus P, Satrapinsky L, Sobolewski R, *IEEE Trans. Appl. Superconductivity*, **13** (2), 3316-3319 (2003)
38. “Time-Resolved Photoexcitation of the Superconducting Two-Gap State in MgB<sub>2</sub> Thin Films” Y. Xu, M. Khafizov, L. Satrapinsky, P. Kús, A. Plecenik, and Roman Sobolewski, *Physical Review Letters*, **91**, 197004 (2003)

### PATENTS

1. “Apparatus for determining a thermal conductivity and a thermal diffusivity of a material, and related methods”, D. H. Hurley, R. S. Schley, M. Khafizov, US 10578569, March 3, 2020

### SEMINAR TALKS

1. University of Florida, Gainesville, FL, February 2019
2. Nazarbayev University, Astana, Kazakhstan, August 2018
3. Idaho National Laboratory, Idaho Falls, ID, May 2018
4. Georgia Tech University, Atlanta, GA, October 2015
5. Nazarbayev University, Astana, Kazakhstan, August 2015
6. Wright Patterson Air Force Research Laboratory, Dayton, Ohio, February 2015
7. Ohio State University, Columbus, OH, April 2014
8. Kazan Federal University, Kazan, Russia, 2013
9. University of Wisconsin, Madison, WI, May, 2012
10. Idaho State University, Pocatello, ID, March, 2012
11. Idaho National Laboratory, Idaho Falls, ID, September, 2009
12. Massachusetts Institute of Technology, Cambridge, MA, August 2008
13. University of Michigan, Ann Arbor, MI, July 2007
14. University of Illinois at Urbana Champaign, IL, May 2007
15. CBC Seminar, University of California, Irvine, CA, April 2007

### CONFERENCE PROCEEDINGS

1. K. Agarwal, M. Khafizov, R. Schley, C. Jensen, D. Hurley, N. Kandadai, H. Subbaraman, *Infrared Thermography for in-pile imaging of Nuclear Fuel Cracking*, 11<sup>th</sup> Nuclear Plant Instrumentation, Controls and Human-Factor and Machine Interfaces, Orlando, FL (2019)
2. M. Khafizov and D. Hurley, *Laser Based Experimental Methods for Validation of Atomic Level Modeling in Nuclear Fuel*, TopFuel 2015: Reactor Fuel Performance, Zurich, Switzerland, (2015)
3. D. Hurley, M. Khafizov, R. Kennedy and E. Burgett, “*Mechanical Properties of Nuclear Fuel Surrogates using Picosecond Laser Ultrasonics*”, Proceeding of the 2013 International Congress on Ultrasonics 268, Singapore, (2013)

4. Y. Xu, M. Khafizov, A. Plecenik, P. Kus, L. Satrapinsky, and R. Sobolewski, *Fabrication and femtosecond photoresponse studies of MgB<sub>2</sub> superconducting thin films*, SPIE Proceedings Vol. 4811- Superconducting and Related Oxide: Physics and Nanoengineering, pp. 277-287, Seattle, WA (2002)

#### TECHNICAL REPORTS

1. A. Fleming, D. Hurley, C. Jensen, R. Schley, M. Khafizov, FY-17 *Report for the design of a benchtop Photothermal Radiometry system* (INL/EXT-17-43412). Idaho National Laboratory, Idaho Falls, ID (2017)
2. D. Hurley, C. Jensen, R. Schley, M. Khafizov, N. Kandadai, M. Long, H. Subbaraman, FY-17 *Status Report for the Development of Infrared Thermography for In-Pile Fuel Behavior Applications* (INL/EXT-17-43411). Idaho National Laboratory, Idaho Falls, ID (2017)
3. S. Bragg-Sitton, D. Hurley, M. Khafizov, B. Merrill, R. Schley, K. McHugh, I.J. Van Rooyen, Y. Katoh, C.P. Shih, *Silicon Carbide Gap Analysis and Feasibility Study* (INL/EXT-13-29728). Idaho National Laboratory, Idaho Falls, ID (2013)
4. F. Farzbod, S. J. Reese, Z. Hua, M. Khafizov, D. H Hurley, *Advanced Measurements of Silicon Carbide Ceramic Matrix Composites* (INL/EXT-12-27032) Idaho National Laboratory, Idaho Falls, ID (2012)

#### MAGAZINE ARTICLES

1. “Studying silicon carbide for nuclear fuel cladding”, S. Bragg-Sitton, K. Barrett, I. van Rooyen, D. Hurley, M. Khafizov, *Nucl. Eng. Inter.* **58**, 37 (2013)

#### CONFERENCE PRESENTATIONS

1. Marat Khafizov, Gaofeng Sha, Maha Yazbeck, Yuzhou Wang, Aleksandr Chernatynskiy, and Joshua Daw, *Irradiation behavior of piezoelectric materials for nuclear reactor sensors*, 20<sup>th</sup> International Conference on Radiation Effects in Insulators, Astana, Kazakhstan (2019)
2. Azat Abdullaev, V. S. Chauhan, J. O’Connell, V. A. Skuratov, A. Janse van Vuuren, M. Khafizov and Z. N. Utegulov, *Nano- and micro-scale thermal transport in swift heavy ion irradiated Al<sub>2</sub>O<sub>3</sub>*, 20<sup>th</sup> International Conference on Radiation Effects in Insulators, Astana, Kazakhstan (2019)
3. Vinay S. Chauhan, Janne Pakarinen, Lingfeng He, David Hurley, Marat Khafizov, *Optical characterization of displacement damage and measurement of thermal conductivity in proton irradiated cerium dioxide*, 20<sup>th</sup> International Conference on Radiation Effects in Insulators, Astana, Kazakhstan (2019)
4. Yuzhou Wang, Zilong Hua, David Hurley, Gaofeng Sha, Samuel Raetz, Vitalyi Gusev, Marat Khafizov, *Characterization of Polycrystalline Microstructure with Picosecond Ultrasonics*, 61st Electronic Materials Conference, Ann Arbor, MI (2019)
5. Vinay Chauhan and Marat Khafizov. *Impact of Low Dose Ion Irradiation on Raman Spectra and Thermal Conductivity in 3C-SiC*, 5th Workshop on HTGR SiC Material Properties, Oak Ridge, TN (2019)
6. Marat Khafizov, *Impact of radiation damage on physical properties of ceramics*, OSU IMR Materials Week, Columbus, OH (2019)

7. Vinay Chauhan, Lingfeng He, Janne Pakarinen, David Hurley, Marat Khafizov, *Impact of Irradiation Induced Nanoscale Defects on Thermal Conductivity of Cerium Dioxide*, 2019 MRS Spring Meeting, Phoenix, AZ (2019), 2019 MRS Spring Meeting, Phoenix, AZ (2019)
8. Yuzhou Wang, Zilong Hua, David Hurley, Gaofeng Sha, Samuel Raetz, Vitalyi Gusev, Marat Khafizov, *Coherent Acoustic Phonon Generation, Propagation and Application on Imaging Grain Boundary via Time-Domain Brillouin Spectroscopy*, 2019 MRS Spring Meeting, Phoenix, AZ (2019), 2019 MRS Spring Meeting, Phoenix, AZ (2019)
9. K. Agarwal, M. Khafizov, R. Schley, C. Jensen, D. Hurley, N. Kandadai, H. Subbaraman, *Infrared Thermography for in-pile imaging of Nuclear Fuel Cracking*, 11<sup>th</sup> Nuclear Plant Instrumentation, Controls and Human-Factor and Machine Interfaces, Orlando, FL (2019)
10. M. Khafizov, M. F. Riyad, Y. Wanga, V. Chauhan, J. Pakarinen, L. He, D. Hurley, *Impact of low dose and low temperature displacement damage by hydrogen and helium ion irradiations on thermal transport in uranium dioxide*, NuMat 2018, Nuclear Materials Conference, Seattle, WA (2018)
11. Y. Wang, M. Khafizov, D. Hurley, Z. Hua, *Characterization of ceramic oxide microstructure with picosecond ultrasonics*, Materials Science & Technology 2018, Columbus, OH (2018)
12. V. Chauhan, M. Khafizov, *Measurement of thermal conductivity in GaN thin films and interface resistances between GaN and its substrates*, Materials Science & Technology 2018, Columbus, OH (2018)
13. K. Agarwal, M. Khafizov, *Detection of Cracks in Materials Using Heterodyne Lock-in Thermography and Signal Processing Techniques*, Materials Science & Technology 2018, Columbus, OH (2018)
14. V. Chauhan, M. Khafizov, *Quantification of Defects Using Raman Spectroscopy in Low Dose Irradiation in 3C-SiC*, Materials Science & Technology 2018, Columbus, OH (2018)
15. M. Khafizov, D. Hurley, *Picosecond ultrasonics and transient thermoreflectance methods for characterization of grain boundary microstructure and thermal transport*, SPIE Optical Engineering & Applications 2018, San Diego, CA (2018)
16. Y. Wang, D. Hurley, E. Luther, M. Beaux, V. Rao, I. Usov, M. Khafizov, *Characterization of microstructure and thermal transport in PyC thermal barrier coating for advanced fuels*, Spring MRS 2018, Phoenix, AZ (2018)
17. M. Khafizov, *Laser Based Characterization of Microstructure and Thermal Properties in Nuclear Fuel Materials*, TMS 2018, Phoenix, AZ (2018)
18. V. Chauhan, X. Du, C. Wei, J-C. Zhao, M. Khafizov, *Impact of Low Dose Ion Irradiation on Raman Spectra and Thermal Conductivity in 3C-SiC*, TMS 2018, Phoenix, AZ (2018)
19. Y. Wang, D. Hurley, E. Luther, M. Beaux, V. Rao, I. Usov, M. Khafizov, *Anisotropic thermal conductivity and interface resistance in PyC coated ZrO<sub>2</sub> particles*, TMS 2017, San Diego, CA (2017)
20. M. F. Riyad, M. Khafizov, "Model of thermal conductivity reduction due to point defect accumulation in ion irradiated UO<sub>2</sub>" TMS 2017, San Diego, CA (2017)
21. M. Khafizov, Y. Wang, V. S. Chauhan, M. F. Riyad, *Spatially Resolved Measurement of Thermal Transport in Composites*, NuMat 2016, Nuclear Materials Conference, Montpellier, France (2016)
22. V. S. Chauhan, Y. Wang, M. F. Riyad, M. Khafizov, *Sensitivity of Modulated Thermoreflectance Techniques to Measurement of Conductivity Reduction in Ion Beam Irradiated Materials*, 2016 MRS Spring Meeting, Phoenix, AZ (2016)
23. M. F. Riyad, V. S. Chauhan, A. Gashgash, X. Du, C. Wei, M. Khafizov, *Investigation of Thermal Conductivity in Ion Irradiated Samples Using Laser Based Thermoreflectance Methods*, TMS 2016, Nashville, TN (2016)



24. M. Khafizov and D. Hurley, *Laser Based Experimental Methods for Validation of Atomic Level Modeling in Nuclear Fuel*, TopFuel 2015: Reactor Fuel Performance, Zurich, Switzerland, (2015)
25. M. Khafizov, J. Pakarinen, L. He, A. Chernatynskiy, Xianming Bai, A. Nelson, S. Phillpot, T. Allen, D. Hurley, *Influence of Irradiation Induced Point Defects on Thermal Conductivity in UO<sub>2</sub>*, TMS 2015, Orlando, FL (2015)
26. D. Hurley, M. Khafizov, R. Schley, E. Burgett, *Physical Properties of Nuclear Fuel Surrogates Using Laser Ultrasonics*, TMS 2015, Orlando, FL (2015)
27. M. Khafizov, M. Gupta, J. Pakarinen, C. Yablinsky, L. He, B. Valderamma, M. V. Manuele, J. Gan, T. R. Allen, D. H. Hurley, *Measurement of Thermal Conductivity in Ion Irradiated Materials*, MRS Spring Meeting, San Francisco, CA (2013)
28. D. Hurley, M. Khafizov, R. Kennedy and E. Burgett, “Mechanical Properties of Nuclear Fuel Surrogates using Picosecond Laser Ultrasonics”, International Congress on Ultrasonics, Singapore, (2013)
29. Z. Hua, H. Ban, M. Khafizov, R. Schley, D. Hurley, R. Kennedy, “Photothermal Reflectance Technique to Measure Thermal Conductivity with Micrometer Resolution”, ANS Annual Meeting, Atlanta, GA (2013)
30. M. Simpson, G. Fredrickson, B. Serrano-Rodriguez, N. Gese, M. Khafizov, S. Phongikaroon, K. Allahar, “Sensor Technology for Real Time Monitoring of Molten Salt Electrolytes During Nuclear Fuel Electrorefining”, TMS 2013, San Antonio, TX (2013)
31. M. Khafizov, I. Park, A. Chernatynskiy, B. Deng, J. Lin, J. J. Moore, S. Phillpot, and D. H. Hurley, *Influence of grain boundary scattering on thermal transport in nuclear fuel*, Phonons 2012, Ann Arbor, MI (2012)
32. D. Hurley and M. Khafizov, *Investigation of Thermal Transport Across Interfaces Using Time Resolved Thermal Wave Microscopy*, 18th Symposium on Thermophysical Properties, Boulder, CO (2012)
33. Z. Hua, M. Khafizov, D. Hurley, H. Ban and R. Kennedy, *Laser-Based Measurement of Thermal Conductivity*, 18th Symposium on Thermophysical Properties, Boulder, CO (2012)
34. M. Khafizov, A. Schulte, M. Gupta, Z. Hua, C. Yablinsky, T. Allen, D. Hurley, *Gauging the influence of proton irradiation on phonon mediated thermal transport*, MRS Fall Meeting, Boston, MA (2011)
35. Bradford Loesch, Shujing Wang, Marat Khafizov, Xiaomin Tu, Ming Zheng and Todd Krauss, *Multiple Exciton Generation in Single Chirality Single-Walled Carbon Nanotubes*, MRS Fall Meeting, Boston, MA (2011)
36. L.J. Carlson, M. Khafizov, A. J. Lee, J.A. Smyder, s.Wang, X. Wang, T. Krauss, *Photophysics of Single and Multiple Excitons in Carbon Nanotubes*, 33 DOE Solar Photochemistry Research Conference, Wintergreen, VA (2011)
37. M. Khafizov, D. H. Hurley, I. Park, J. Lin, J. J. Moore, R. Deskins and A. El-Azab, *Spatially resolved thermal transport in surrogate nuclear fuel materials with engineered microstructure*, EFRCs Summit and Forum, Washington, DC (2011)
38. C. Yablinsky, P. Xu, A. Schulte, M. Khafizov, D. Hurley, J. Gan, T. Allen, *Effects of Radiation and Annealing on Microstructure and Thermal Transport in CeO<sub>2</sub>*, EFRCs Summit and Forum, Washington, DC (2011)
39. I-W. Park, J. Moore, J. Lin, M. Manuel, A. El-Azab, T. Allen, P. Xu, D. Hurley, M. Khafizov, and J Gan, *Deposition and Post-annealing of Ceria Films Deposited by Pulsed Unbalanced Magnetron Sputtering*, EFRCs Summit and Forum, Washington, DC (2011)

40. M. Khafizov, D. H. Hurley, *Measurement of Thermal Transport Using Time-resolved Thermal Wave Microscopy*, MRS Spring Meeting, San Francisco, CA (2011)
41. M. Khafizov, D. H. Hurley, I. Park, J. J. Moore, J. Lin, R. Deskins, A. El-Azab, *Thermal Transport in Ceria Thin Films Having Engineered Microstructure*, MRS Spring Meeting, San Francisco, CA (2011)
42. W. Park, J. J. Moore, J. Lin, H. Henderson, M. Manuel, A. El-Azab, T. Allen, P. Xu, D. Hurley and M. Khafizov, *Deposition and Post-annealing of Ceria Films Deposited by Pulsed Unbalanced Magnetron Sputtering*, ICMCTF 2011 (The 38th International Conference On Metallurgical Coatings And Thin Films), San Diego, CA (2011)
43. M. Khafizov, S. Wang, X. Tu, M. Zheng, T. D. Krauss, *Multiple Exciton Generation in Single-walled Carbon Nanotubes*, Functionalized NanoMaterials, Santa Fe, NM (2010)
44. M. Khafizov, S. Wang, X. Tu, M. Zheng, T. D. Krauss, *Multiple Exciton Generation in Single-walled Carbon Nanotubes*, MRS Fall Meeting, Boston, MA (2009)
45. S. Wang, M. Khafizov, M. Zheng, T. D. Krauss, *Exciton-exciton Annihilation Dynamics in (6,5) Single-walled Carbon Nanotubes*, MRS Fall Meeting, Boston, MA (2009)
46. M. Khafizov, S. Wang, X. Tu, M. Zheng, T. D. Krauss, *Multiple Exciton Generation in Single-walled Carbon Nanotubes*, 238th ACS National Meeting, Washington, DC (2009)
47. M. Khafizov, S. Wang, L. C. Carlson, T. D. Krauss, Y. Cui, X. X. Xi, *Exciton Dynamics in Individual Single-walled Carbon Nanotubes*, APS March Meeting, Pittsburgh, PA (2009)
48. M. Khafizov, D. Wang, X. Li, R. Sobolewski, Y. Cui, X. X. Xi, *Nonequilibrium Photoresponse of Current-Biased, Epitaxial MgB<sub>2</sub> Microbridges*, APS March Meeting, Baltimore, MD (2006)
49. X. Li, M. Khafizov, R. Sobolewski, S. Chromic, V. Strbik, D. De Barros, P. Odier, *Ultrafast, Time-Resolved Quasiparticle Dynamics in Hg-Based High Temperature Superconductors*, APS March Meeting, Baltimore, MD (2006)
50. M. Khafizov, X. Li, R. Sobolewski, Y. Cui and X. X. Xi, *Mechanism of light detection by superconducting current-biased MgB<sub>2</sub> microbridges*, ASC, Seattle, WA (2006)
51. X. Li, M. Khafizov, R. Sobolewski, S. Chromik, V. Strbik, M. Valerianova, P. Odier, *Ultrafast Carrier Dynamics and Photoresponse of Hg-Ba-Ca-Cu-O Superconducting Microbridges*, ASC, Seattle, WA (2006)
52. Y. Xu, M. Khafizov, A. Plecenik, P. Kus, L. Satrapinsky, R. Sobolewski, *Femtosecond optical characterization of MgB<sub>2</sub> superconducting thin films*, ASC, Houston, TX (2002)
53. Y. Xu, M. Khafizov, A. Plecenik, P. Kus, L. Satrapinsky, R. Sobolewski, *Fabrication and femtosecond photoresponse studies of MgB<sub>2</sub> superconducting thin films*. OPTO Canada: SPIE Regional Meeting on Optoelectronics, Photonics, and Imaging (2002), Ottawa, Canada