# Personal

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# Education

1978-84 University of Liverpool

1981 B.Sc. (Hons.) Physics; 1st class.

1985 Ph.D. in Physics.

 Thesis Title: Mössbauer spectroscopic studies of linear and non-linear magnetic excitations in
crystals.

 This included the experimental study of spin waves, solitary excitations, and superparamagnetism at low temperatures and high magnetic fields.

1988-89 City and Guilds Further and Adult Education Teachers Certificate.

1990-91 Certificate in Education (Post 16).

# Professional Organizations

1993 Institute of Physics (UK), Fellow, C. Phys., Treasurer USA, IOP

1995 Institute of Water and Environmental Management

2000 American Crystallographic Society - Amorphous Materials Group Chair

2000- Materials Research Society Member

2000 American Physical Society Member

2000- American Ceramic Society Fellow

# Appointments

1991-95 Associate Professor, Engineering, Liverpool John Moore’s University.

1993-95 Adjunct Professor, Department of Physics, University of Liverpool.

1995-99 Scientist in Material Science Division, Argonne National Laboratory, USA.

1999-01 Assistant Division Director, Material Science Division at Argonne National Laboratory, USA.

2001-2007 Scientist, Energy Technology, Argonne National Laboratory, USA.

2007- 2013 Special Term Appointee, Nuclear Engineering Division, Argonne National Laboratory, USA.

2007-2013 Associate Professor, University of Tennessee Space Institute, Tullahoma, USA.

2013-2018 Associate Professor (with tenure), University of Tennessee Space Institute, Tullahoma, USA.

2018- Professor (with tenure), University of Tennessee Space Institute, Tullahoma, USA.

**Awards**

2007 R & D 100 award

2010 Who’s Who in America

2011 Patent: #, US 8,008,642: Computed Radiography System for Mammography

2011 Fellow of the Institute of Physics

2013 Fellow of the American Ceramic Society

2014 UT College of Engineering Professional Promise in Research Award

2015 PD 15092-07: A Method for Creating Functionally Graded, Optically Active, Glass Ceramics

2017 PD 17078-07: System to Aid Visualization of Cancerous Tissue during a Lumpectomy

2017 PD 17107-07: Thin film fluoride glasses for passive temperature sensing and recording

2017 Albert Nelson Marquis Lifetime Achievement Award

2017 PD 18021-07: Iron Nanoparticles for Hyperthermia and Magnetic Resonance Imaging

**Research Grants**

1995 Engineering and Physical Sciences Research Council, $190K.
Mössbauer Measurements of Tin in Float Glass

1995 Liverpool John Moore’s University Research Funding Application, $40K
Tin-Diffused and Tin-Coated Glass Surfaces

1995 Pilkington Glass PLC, $100K
Mössbauer Measurements of Tin in Float Glass

2002 Department of Energy-Cooperative Research and Development Agreement, $60K
Glass Design for High Energy Density Lasers

2002 Laboratory Directed Research and Development, $15K
Scratch-resistant coatings

2002 Department of Energy- Tribological Consortium Glue Money, $20K

2003-05 National Institutes of Health-Improvements in Imaging Methods and Technologies, $482K
Advanced High-Resolution Two-dimensional X-ray Detector

2003-05 Laboratory Directed Research and Development, $300K
Advanced High-Resolution Two-dimensional X-ray Detector

2004 Department of Energy -Small Business Technology Transfer Research, $96K
Extended lifetime neutron chopper system

2004 Department of Energy, $150K
Grain rotation during deformation

2006 Laboratory Directed Research and Development, $366K
Anti-Thrombogenic Coatings for Caridovascular Implants

2006 Laboratory Directed Research and Development, $75K

 Super solar cell efficiency using up- and down-conversion in fluorozirconate glass ceramics.

2006 Department of Energy-Cooperative Research and Development Agreement, $50K

 Combined X-ray/Neutron/Gamma Detector.

2006 DoD, GaSb polishing project, 600K

2007 Advanced Multijunction Solar Cell & Concentrator System Development for DoD Terrestial and Space Applications, 100K

2007 Laboratory Directed Research and Development, $195K
Superslick anti-fog transparent coating for broncoscope.

2007 Startup Funding UTSI, $75K

2008 NIH, BMIT, $1,768,879 (2008-$534,671); (2009-$492,857);
(2010-$376,385); (2011-$364,766) No cost extension until 07/31/2013
Advanced High-Resolution Two-Dimensional X-ray Detector for Mammography

2008 NIH, SBIR subcontract, $24,999
Nanophase Glass Ceramic X-ray Imaging Materials.

2009 DOE – EERE, $1M - \*Money had to stay at Argonne – pay me as a consultant for synthesis and characterization. Dual Purpose Advanced Heat Transfer Fluids with Enhanced Thermal Properties and Thermal Energy Storage Capabilities.

2010 NSF SBIR Project 1013481, Ultool, $100,000 ($12,000 to UTSI).
 Environmentally-benign High-Rate Deposition of Alloy Coatings for Electrolytic Hard Chrome Replacement.

2010 NSF, DMR, Award # 1001381 $289,108
 Study of the Evolution of Nanoparticle Crystallization and Optical Properties in Glass Ceramics.

2010 NIH, SBIR Phase II 261201000113C-0-0-1, MDI, $998,000 ($30,000 to UTSI). No cost extension until 08/31/2013
Nanotechnology Imaging and Sensing Platforms for Improved Diagnosis of Cancer.

2012 PDA Coated Iron Nanoparticles for hyperthermia and thermal storage. $4,286

2012 NSF, DMR, Award # 1001381 $6,111 \*Supplement to 2010 NSF grant for workshop participation at NSF headquarters. Study of the Evolution of Nanoparticle Crystallization and Optical Properties in Glass Ceramics.

2013 PDA Coated iron nanoparticles for enhanced neurological theranostics, $4608

2013 DOE Y12, $300,000 Large Area, High Resolution Storage Phosphor Detectors for High Energy (MeV) Digital Radiography.

2013 NIH NIDCR, $138,392, Advanced Image Plates for Dental X-ray Diagnostics.

2014 Graftech, $2,221, Raman Spectroscopy Testing of Graphitic Materials

2014 Volkswagon, $48,000, Multielectron cathode materials with capacities > 380 mAh/g
2014 SARIF Equipment and Infrastructure Award, $32,500, Whole body synthetic cadaver.

2016 NSF, DMR, Award # 1600783 $319,842, Designer Glass Ceramics.

2017 Student/Faculty award: Synthesis of di-sodium as novel rechargeable battery cathodes. $4407
2018 Middle Tennessee Glass MATE (Materials and Technology Education). $6,662

**Conferences and Symposia organized**

2000 Battery Materials: American Crystallographic Association.
Minneapolis, USA
Supported by NIST ($1.5K), PRF ($2K), NSF ($2K), ACA ($2K), NASA ($2K)

2002 International Focused Workshop: Materials in Extreme Environments.
Denali National Park, USA
Supported by NSF ($63K)

2002 New Directions in Glass Structure and Dynamics.
Pittsburgh, USA
Supported by ACA ($1K), AcerS ($1K), NSF( $11K)

#### 2005 Low Friction Coatings on Glass and Ceramics.Baltimore, USASupported by ACerS ($1.8K), NSF ($5.5), NIH ($5.2K)

2008 Career Options, 2nd International Congress on Ceramics
 Verona, Italy

2008 Session chair, American Society of Mechanical Engineers

 Boston, USA

2009 Panel Member, American Society of Mechanical Engineers
 San Francisco, USA

2011 Session chair, American Vacuum Society
 Nashville, USA

2015 Session Chair, ICACC, Daytona, USA

2015 Scientific Organizing Committee PNCS XIV
 Niagara Falls, USA

2015 Session Chair, X-ray and Neutron Methods, MS&T15, Columbus, OH, USA

2018 Symposium Organizer, Glasses and Glass-Ceramics in Detector Applications, GOMD, San Antonio, TX

**Award Committees**

Committee Member for the Selection of the Warren Award Recipient for the American Crystallographic Association (2002).

Poster judge for the Glass and Optical Materials Division (ACerS) Annual Meeting (May 2006).

Alfred R. Cooper Award nominations committee (ACerS) 2012-present

Poster judge for the Institute of Biomedical Engineering (iBME) symposium, Knoxville (April 2014).

Nominations Committee for the Kyoto Prize in Advanced Technology (2014 for 2015 prize).

Edward Orton Jr. Memorial Lecture Committee (ACerS) 2015-2017

Glass and Optical Materials Division (GOMD) fellow representative on the ACerS Panel of Fellows 2016-

**Editorial Boards**

Editorial Board of International Scholarly Research Notices (ISRN) – ended 2017

Senior Editor for ScienceJet Journal

Editorial Board for Journal of Biomedical Technology and Research, Elyns Publishing Group

Editor-in-chief/organizing committee member for**International Journal of Aeronautical Science & Aerospace Research (IJASAR).**

Managing Editor for JBR Journal of Translational Space dentistry, Medicine and Exploration (JBR-TSME)

Associate Editor for Frontiers in Materials: Glass Science

Editorial Board - Journal of Nanoparticles & Nanotechnology

Editor – Light & Laser: Current Trends

Editorial Board - Journal of Nanoscience with Advanced Technology

Editorial Board - International Journal of Nano Research & Applications

**Conference Committees**

Local Organizing Committee, Applied Diamond Conference, ANL (May 2005).

International Program Committee (IPC) for the IASTED International Conference on Solar Energy (SOE 2010) Banff, Canada (July 2010).

International Program Committee (IPC) for the IASTED International Conference on Power and Energy Systems and Applications (PESA 2011) Pittsburg, USA (November 2011).

Advisory Board, Brain Tumors: Biology & Therapy Meeting, Stockholm, Sweden (2015).

Organizing Committee, Physics of Non-Crystalline Solids (PNCS) XIV, Niagara Falls, USA (2015).

**Federal Funding Review Panels**

NSF Panel for the Division of Materials Research, Washington, DC (February 2003).

Panelist to Review the Materials Research Science and Engineering Center at Cornell University (April 2003).

NIH Panel for the Division of Biomedical Imaging and Bioengineering, Washington DC (October 2003).

NSF Panel for the Division of Materials Research, Washington, DC (February 2004).

NSF Panel for the Division of Materials Research, Washington, DC (January 2005).

NSF Panel for the Division of Materials Research, Washington, DC (January 2006).

NIH Panel for the Small Business Medical Imaging Study Section, Washington DC, (October 2006).

NIH Panel for the Biomedical Imaging Study Section (BMIT), San Diego, CA (February 2007).

NIH Panel for the Small Business Medical Imaging Study Section, Washington DC, (October 2007).
NIH Panel for the Small Business Medical Imaging Study Section, San Diego, CA (February 2008).

NIH Panel for the Small Business Medical Imaging Study Section, Washington DC (June 2008).

NIH Panel for the Biomedical Imaging Study Section (BMIT), Dana Point, CA (February 2009).

NSF Panel for MRI/IMR (Major Research Instrumentation and Instrumentation for Materials Research),
Washington, DC (May 2009).

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (June 2009).

Proposal Reviewer for Italian Ministry of Health (September 2009).

NSF Panel for MRI-R2/IMR (Major Research Instrumentation and Instrumentation for Materials Research),

Washington, DC (October 2009).

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (October 2009).

NIH Panel for the Small Business Medical Imaging Study Section, San Diego, CA (February 2010).

Reviewer for Lytmos/Florida Department of Health (2010).

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (June 2010).

NSF Panel for MRI (Major Research Instrumentation), Washington, DC (June 2010).

Proposal Reviewer for Italian Ministry of Health (September 2010).

NIH Panel for the Small Business Medical Imaging Study Section, Santa Monica, CA (February 2011).

NSF Panel for MRI (Major Research Instrumentation), Washington, DC (May 2011).

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (June 2011).

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (October 2011).

Reviewer for RFA CA 11-011 and 012 Research Answers to Provocative Questions

NIH Panel for the Small Business Medical Imaging Study Section, Los Angeles (February 2012).

Proposal Reviewer – Romanian Research Council (June 2012)

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (October 2012).

NIH Panel for the Small Business Medical Imaging Study Section, Los Angeles (February 2013).

Scientific Advisory Board, SNS/HFIR, Oak Ridge National Laboratory (2013-2016).

Reviewer for the Defense Threat Reduction Agency (DTRA) (April 2013).

Reviewer for the Ministry of Business, Innovation & Employment (MBIE), New Zealand (April 2013).

Reviewer for the National Institute of Standards and Technology (NIST), Center for Neutron Research (May 2013).

Reviewer for Smart and Connected Health (NSF/NIH) (August 2013).

NIH Panel for the Small Business Medical Imaging Study Section, Los Angeles (February 2014).

Reviewer for the National Institute of Standards and Technology (NIST), Center for Neutron Research (March 2014).

Reviewer for the Ministry of Business, Innovation & Employment (MBIE), New Zealand (April 2014).

Scientific Advisory Board, SNS/HFIR, ORNL, Disordered Materials Committee co-Chair (April 2014).

Reviewer for Laboratory Direct Research Directorate (LDRD) Oak Ridge National Laboratory (May 2014).

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (June 2014).

Scientific Advisory Board, SNS/HFIR, ORNL, Disordered Materials Committee co-Chair (November 2014).

NIH Panel for the Small Business Medical Imaging Study Section, Los Angeles (February 2015).

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (June 2015).

Reviewer for the National Institute of Standards and Technology (NIST), Center for Neutron Research (July 2015).

Scientific Advisory Board, SNS/HFIR, ORNL, Disordered Materials Committee (November 2015).

NIH Panel for the Small Business Medical Imaging Study Section, Washington, DC (November 2015).
Scientific Advisory Board, SNS/HFIR, ORNL, Disordered Materials Committee (May 2016).

NIH panel for the Integration and Validation of Emerging Technologies to Accelerate Cancer Research (R33) (July 2017)-Joe Biden Cancer Moonshot Initiative (first review panel).

NIH - Special Emphasis Panel/Scientific Review Group SBIB-G 83 AREA (R15) (February 2018)

NSF Panel for MRI on Thin Films (Major Research Instrumentation) April 2018.

**Thesis Committees**

Doctoral Thesis Committee, Kyle Williams, Liverpool University (1995)

Doctoral Thesis Committee, Paul Appleyard, Liverpool University (2000)

Doctoral Thesis Committee, Jackson Hu, Monash University, Australia (2005).

Master’s Thesis Committee, Deepak Rajput, UTSI (2008).

Master’s Thesis Committee, Lee Leonard, UTSI (2010).

Master’s Thesis Committee, Manh Vu, UTSI (2011).

Master’s Thesis Committee, Sharon Gray, UTSI (2012).

Master’s non-Thesis Committee, Chris Foerster, UTSI (2012).

Doctoral Thesis Committee, Michel Akiki, UTSI (2012).

Doctoral Thesis Committee, Carlos Alvarez, Northwestern University (2012).

Master’s non-Thesis Committee, Sarah Elizabeth Norred, UTK (2013)

Master’s non-Thesis Committee, Michelle Whorton, UTK (2013)

Master’s non-Thesis Committee, Katie Elicerio, UTK (2013)

Master’s Thesis Committee, Ahmad Algohary, UTK (2013).

Master’s Thesis Committee, Julie King UTSI (2015).

Master’s Thesis Committee, Jason Hah UTSI (2015).

Doctoral Thesis Committee, Lee Leonard, UTSI (2015).

Master’s Thesis Committee, Adam Evans, UTSI (2016).

Doctoral Thesis Committee, Julie King, UTSI (2016).

Doctoral Thesis Committee, Jason Hah, UTSI (2016).

Doctoral Thesis Committee, Adam Evans, UTSI (2016).

Master’s Thesis Committee, Chad Bond, UTSI (2016).

Master’s non-Thesis Committee, Breanna Rhyne, UTK (2017).

Master’s non-Thesis Committee, Chris Joren, UTK (2017).

Master’s non-Thesis Committee, Tony Nguyen, UTK (2017).

Doctoral Thesis Committee, Ghaneshwar Gautam, UTSI (2017)

Master’s non-Thesis Committee, Michael Slater Pennington Jr., UTK (2017)

Master’s non-Thesis Committee, Zachary Kerley., UTK (2017)

Master’s non-Thesis Committee, Jeffrey Womack, UTK (2017)

Master’s non-Thesis Committee, Aditya Hedge., UTK (2017)

Doctoral Thesis Committee, Christopher Brandon Shaver, UTK (2017)

Doctoral Thesis Committee, Yu Jin, Northwestern University (2018).

Doctoral Thesis Committee, Chad Bond, UTSI (2018).

Master’s Thesis Committee, Austin Thomas, UTSI (2018).

**Argonne National Laboratory Committees**

Strategic Planning Retreat for the Advanced Photon Source, Geneva, WI (August 2004).

Outreach Committee, Argonne National Laboratory, IL (from October 2005).

Named Postdoctoral Committee, Argonne, IL (November 2005).

Reviewer for Laboratory Direct Research Directorate (LDRD) Argonne National Laboratory (2012).

Reviewer for Laboratory Direct Research Directorate (LDRD) Argonne National Laboratory (2013).

Reviewer for Laboratory Direct Research Directorate (LDRD) Argonne National Laboratory (2014).

**UTSI/UTK Committees**

Search Committee for new faculty positions in Materials Science and Engineering at UTSI (2007-2008).

UTSI Fellowship Selection Committee (2007 - 2010).

Vision and Mission Statement Committee, UTSI (July – Sep 2008).

Strategic Goal II - Increasing Research Funding Dollars Committee, UTSI, 2008.

Strategic Planning Committee, UTSI (2009).

Committee for Student Affairs, UTSI (2009).

UTSI Nominations Committee (2010 - present)

Student recruiting leader for UTSI from FY 2010 -2011.

UTSI Faculty Search Committee member: Flow-Structure Interactions, 2011.

Search Committee, Information Technology Administrator, UTSI, 2012.

Search Committee, Department Head, MABE, UTK/UTSI, 2013.

Faculty Proposal Review Committee, 2013 onwards.

Search Committee, H. H. Arnold Chair, MABE, UTK/UTSI, 2013.

UTK/UTSI Graduate Admissions and Recruiting Committee, 2013-
Search Committee: AE faculty, Flight Test Engineering, 2013.

Faculty President, UTSI, 2014

UTK Senator 2014-2016
Chair, Research Council, 2014

Member Research Council, 2015-

Education Committee, 2014-

Mentor, Reza Abedi, 2014-

Mentor, Feng Yuan Zhang, 2014-

Leader, Summer Interns, 2011-2014

Multi-cultural Advisory Committee 2014

iBME Multiscale Imaging Working Group 2014

iBME Medical Sensors and Devices Working Group 2014

Library and Information Technology Committee, UTK 2014-2016

Nominations and Appointments Committee, UTK 2014

Early Career Mentoring Committee UTK/UTSI 2015-2017

Teaching Peer-Review Committee 2015-

UTSI Executive Director Search Committee 2015

Graduate Programs Committee BME/iBME 2015-

Team Leader – Academic Excellence, UTSI Strategic Initiatives 2016

Search Committee Biomedical Engineer MABE/UTK 2016

Search Committee Boling Chair MABE/UTSI 2017

UTK Senator 2017-2020

UTK Appeals Committee 2017-2020

**Consultancies**

Pilkington Glass (1992).

Biwater Europe (1994).

Lord Bissell Brook (2001).

**Book Reviews**

The Ecology of Biological Sewage Treatment Processes (1994).

Chapman and Hall Publishers.

Review for book proposal “Nano-Glass Ceramics”; Micro and Nanotechnology, Elsevier (2014).

Review for book proposal “Nano-Glass Ceramics”; Processing, Properties and Applications, Elsevier (2014).

**Journal Reviewer**

Carbon; Materials Research Bulletin; Physics and Chemistry of Glasses; Nuclear Instrumentation and Methods; Physics Status Solidi; Materials Chemistry and Physics; Journal of the American Ceramic Society; Journal of Sensors; PloS One; ASME Journal of Tribology; Surface and Coatings Technology; Wear; Hypertension; Applied Physics Letters; Optical Materials; Applied Optics; British Journal of Medicine and Medical Research; International Neuropsychiatric Disease Journal; Journal of Biomaterials and Tissue Engineering; Journal of Cancer and Tumor International; Journal of non-crystalline solids; Journal of Fluorine Chemistry; Journal of Advances in Medicine and Medical Research; British Medical Journal (BMJ) Case Reports.

**Career Break**

I was not conducting research in the years 1985 - 1993 or 1999 - 2001.

As an Instrument Scientist there is also limited time for research, 1995 - 1997.

**Experience**

*High Baird Further Education College*

Predominantly a teacher to adults returning to education - a great experience in imparting information in a way that it can be clearly understood.

*Liverpool John Moores University*

Taught a variety of undergraduate degree courses in physics, mathematics, and engineering, along with laboratory classes. I also supervised undergraduate students for final year projects.

*University of Liverpool (Adjunct position)*

Supervised two graduate students, namely Kyle Williams – graduated, 1995; Paul Appleyard – graduated, 2000.

*Argonne*

Regularly supervised graduate and postgraduate students.

*University of Tennessee Space Institute (current position)*

Graduated students (Masters) - Lee Leonard, Manh Vu, Sharon Gray, Christian Foerster, Jason Hah, Julie King, Adam Evans, Chad Bond

Doctoral – Lee Leonard

Current students (Masters) – Austin Thomas

Doctoral – Julie Swafford, Jason Hah, Adam Evans, Chad Bond

**Courses**

Course: 576 Special Topic: Nanomaterials, Nanostructures, and Nanosensors – Spring 2008

Course: 576 Special Topic: Physics of Thin Films – Fall 2008

Course: 676 Special Topic: Luminescent Materials – Spring 2009

Course: 676 Special Topic: All Things Carbon – Fall 2009

Course: 474/578 Biomaterials – Spring 2010

Course: 512 Fundamentals of Materials Science and Engineering IV – Fall 2010

Course: 511 Fundamentals of Materials Science and Engineering I – Spring 2011

Course: 503 Seminar – Spring 2011

Thin Film Lecture Series - University of the South, Sewanee, TN – Spring 2011

Course: 610 Biomedical Imaging – Fall 2011

Course: 595 Biomedical Engineering Seminar – Fall 2011

Course: 610 Biofunctionalization of Nanomaterials – Spring 2012

Course: 595 Biomedical Engineering Seminar – Spring 2012

Course: 599 Data Interpretation for Engineers I – Fall 2012

Course: 590 Selected Problems in Biomedical Engineering – Fall 2012

Course: 595 Biomedical Engineering Seminar – Fall 2012

Course: 595 Biomedical Engineering Seminar – Spring 2013

Course: 610 Mechanics for Dental Materials – Spring 2013

Course: 599 Data Interpretation for Engineers II – Summer 2013

Course: 610 Luminescent Materials – Fall 2013

Course: 595 Biomedical Engineering Seminar – Fall 2013

Course: 610 Biomedical Imaging – Spring 2014

Course: 595 Biomedical Engineering Seminar – Spring 2014

Course: 599 Physics of Radiation Oncology I – Fall 2014

Course: 595 Biomedical Engineering Seminar – Fall 2014

Course: 599 Physics of Radiation Oncology II – Spring 2015

Course: 595 Biomedical Engineering Seminar – Spring 2015

Course: 610 Magnetic Nanoparticles in Medicine – Fall 2015

Course: 595 Biomedical Engineering Seminar – Fall 2015

Course: 578 Advanced Biomaterials: Biological Applications of Nanomaterials – Spring 2016

Course: 595 Biomedical Engineering Seminar – Spring 2016

Course: 505 All things carbon – Fall 2016

Course: 595 Biomedical Engineering Seminar – Fall 2016

Course: 595 Biomedical Engineering Seminar – Spring 2017

Course: 590 Selected Problems in Biomedical Engineering – Spring 2017

Course: 599 Thin film enhancement of biomedical devices – Spring 2017

Course: 590 Selected Problems in Biomedical Engineering – Summer 2017

Course: 595 Biomedical Engineering Seminar – Fall 2017

Course: 610 Advanced Topics in Biomedical Engineering/Artificial Organs – Fall 2017

Course: 590 Selected Problems in Biomedical Engineering – Fall 2017

Course: 595 Biomedical Engineering Seminar – Spring 2018

Course: 610 Advanced Topics in Biomedical Engineering: Biofunctionalization of Nanomaterials – Spring 2018

Course: 595 Biomedical Engineering Seminar – Fall 2018

Course: 599 Special Topics in Biomedical Engineering: The art and science of performing advanced experiments on Materials and Biomaterials at large facilities – Fall 2018

**Recruiting Presentations**

Tennessee Technological University, Cookeville TN, 09/23/2010

East Tennessee State University, Johnson City TN, 09/27/2010

University of the South, Sewanee TN, 09/28/2010

Coe College, Cedar Rapids IA, 10/05/2010

Berea College, Berea KY, 10/08/2010

King College, Bristol TN, 10/11/2010

Middle Tennessee State University, Murfreesboro TN, 10/28/2010

Christian Brothers University, Memphis TN, 11/02/2010

Memphis University, Memphis TN, 11/03/2010

Rhodes College, Memphis TN, 11/04/2010

Union University, Memphis TN, 11/05/2010

Western Carolina University, Cullowhee NC, 01/28/2011

Tennessee State University, Nashville TN, 02/15/2011

Centre College, Danville KY, 03/02/2011

Mississippi University, Oxford TN, 03/10/2011

Western Kentucky University, Bowling Green KY, 04/01/2011

University of the South, Sewanee TN, 11/16/2011

Austin Peay, Clarksville TN, 02/02/2012

Xavier University, New Orleans LA, 03/01/2012

University of North Georgia, Dahlonega GA, 09/18/2013

University of Alabama, Huntsville AL, 03/18/2014

**Publications**

1. A Mössbauer study of the variation in Néel temperature in iron-rare earth layer compounds.
J.A. Birch (now Johnson) and M.F. Thomas
*J. Mag. Mag. Mat.* **36**, 141-50 (1983).
2. A Mössbauer effect study of the magnetic phase diagram and spin wave excitations in the antiferromagnet Cs2FeCl5.H2O.
J.A. Johnson, C.E. Johnson, and M.F. Thomas.
*J. Phys. C: Solid State Physics* **20**, 91-109 (1987**)**.
3. Phase transitions in doped antiferromagnets.
J. Chadwick, D.H. Jones, J.A. Johnson, C.E. Johnson, and M.F. Thomas.
*Hyperfine Int.* **42**, 1039-42 (1988).
4. Magnetic behavior of the doped antiferromagnet K2Fe1-xGaxF5.
J. Chadwick, D.H. Jones, J.A. Johnson, C.E. Johnson, and M.F. Thomas.
*J. Phys.: Condens. Matter* **1,** 6731-6744 (1989**)**.
5. Tin silicate glasses.
D. Holland, M.M. Karim, C.E. Johnson, K. Williams, and J.A. Johnson.
Fundamentals of Glass Science and Technology, Supp. to Revista della
*Stazione Sperimentale del Vitro,* **XXIII**, 223-228 (1993).
6. Mössbauer spectra of tin in float glass.
J.A. Johnson, C.E. Johnson, K. Williams, D. Holland, and M.M. Karim.
*Hyperfine Interactions* **95** (1-4), pp 41-51 (1993).
7. A novel high efficiency plant for oxygen transfer.
J.A. Johnson, C. Dyson, and D.A. Phipps.
*Water Pollution III: Modeling, Measuring and Prediction*, pp 347-354 (1995).
Computational Mechanics Publications.
8. Mössbauer spectra of tin in binary Si-Sn oxide glasses.
K.F.E. Williams, C.E. Johnson, J.A. Johnson, D. Holland and M.M. Karim.
*J. Phys.:Condens. Matter* **7**, 9485-9497 (1995).
9. Home Energy Performance Fails to Meet Objectives.
J.A. Johnson.
The Natural Environment: Interdisciplinary Views, pp 130-138 (1995).
10. Tin oxidation state, depth profiles of Sn2+ and Sn4+ and oxygen diffusivity in float glass by Mössbauer spectroscopy.
C.E. Johnson, K.F.E. Williams, J. Greengrass, B.P. Tilley, D. Gelder and J.A. Johnson.
*Journal of Non-crystalline Solids* **211** 164-172 (1997).
11. Oxidation states of tin and iron in clear and tinted float glass by Mössbauerspectroscopy.
K. Williams, M.F. Thomas, C.E. Johnson, J. Greengrass, B. Tilley, and J.A. Johnson.
*Fundamentals of Glass Science and Technology*, pp 127-134 (1997).
12. Determination of the sign of the quadrupole coupling constant (*e2qQ)* of Sn2+in silicate glasses by Mössbauer spectroscopy.
P. Appleyard, J.A. Johnson, C.E. Johnson, M.F. Thomas, D. Holland and A. Sears.
*J. Phys: Condens. Matter* **9,** 7477-7483 (1997).
13. Polyselenides and their radical ions.
A. J. Goldbach, J. A. Johnson, M. L. Saboungi, L. A. Curtiss, A. R. Cook and D. Meisel.
Abstracts of papers of the American Chemical Society **213** Phys. Part: 2 146 (1997).
14. Identification and characterization of polyselenides and their radical ions.
A. J. Goldbach, J. A. Johnson, M. L. Saboungi, L. A. Curtiss, A. R. Cook and D. Meisel.
IS&T 50th Annual Conference, final program and proceedings, Page 63 (1997).
15. Characterization of tin at the surface of float glass.
K.F.E. Williams, C.E. Johnson, O. Nikolov, M.F. Thomas, J.A. Johnson, and
J. Greengrass.
*Journal of Non-crystalline Solids* **242,** 183-188 (1998).
16. Atomic structure of solid and liquid polyethylene oxide.
J.A.Johnson, M.L. Saboungi, D.L. Price, S. Ansell, T. Russell, J.W. Halley and B. Nielsen.
*J. Chem. Phys.* **109** (16) 7005-7010 (1998).
17. Selenium nanoparticles: A small angle neutron scattering study.
J.A. Johnson, M.L. Saboungi, P. Thiyagarajan, and R. Csencsits.
*Journal of Physical Chemistry B* **103**(1) 59-63 (1999).
18. Transition metal ions in ternary sodium silicate glasses, a Mössbauer and neutron study.
J.A. Johnson, C.E. Johnson, D. Holland, A. Mekki, P. Appleyard and M.F. Thomas.
*Journal of Non-Crystalline Solids* **246,** 104-114 (1999).
19. On the constituents of Aqueous Polyselenide Electrolytes: A Combined Theoretical and Raman Spectroscopic Study.
A. Goldbach, J. Johnson, D. Meisel, L.A. Curtiss and Marie-Louise Saboungi,*Journal**of the American Chemical Society* Vol. **121**, 18, 4461-4467, (1999).
20. The structure of sodium iron silicate glass - a multi-technique approach.
D. Holland, A. Mekki, I. Gee, C.F. McConville, J. A. Johnson, C.E. Johnson, P. Appleyard, and M.F. Thomas.
Selected paper given at *Int. Congress on Glass: ICG98* San Francisco, July 1998.
*Journal of Non-Crystalline Solids* **253,** 192-202 (1999).
21. Tin and iron in float glass surfaces.
K.F.E. Williams, M.F. Thomas, C.E. Johnson, J.A. Johnson, and J. Greengrass.
*Proceedings of the* *Int. Congress on Glass: ICG98,* San Francisco, July 1998, (CD-ROM) **B7,** 29-35 (1999).
22. Ternary alkali stannosilicate glasses: A Mössbauer and neutron study.
J.A. Johnson, C.E. Johnson, D. Holland, A. Sears, J.F. Bent, P. Appleyard, M.F. Thomas, and A.C. Hannon.
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*Inorg. Chem.* 2017, **56**, 10078−10089 (2017). DOI: 10.1021/acs.inorgchem.7b01613
35. Magnetism and Mössbauer study of formation of γ-Fe2O3-based core-shell nanoparticles.
S Kamali, E Bringas, H Y Hah, B Bates, J A Johnson, C E Johnson, and P Stroeve.
*J. of Mag. and Magnetic Materials* **451** 131–136(2018).
36. The effect of trivalent iron on the properties of fluorochlorozirconate glass ceramics
A.W. Evans, R.L. Leonard, S.K. Gray, J.E. King, A.R. Lubinsky, J.A. Johnson.
*J. Non-Cryst. Solids* **484** 8-13 (2018).
37. Pulsed Laser Deposition of Transparent Fluoride Glass.
C.W. Bond, R.L. Leonard, R.A. Erck, A. Petford-Long, A. Y. Terekhov and J.A. Johnson.
*J. Non-Cryst. Solids* **488** 19-23(2018).<https://doi.org/10.1016/j.jnoncrysol.2018.03.005>
38. Characterization of Luminescent Materials with 151Eu Mössbauer Spectroscopy.
Franziska Steudel, Jacqueline A. Johnson, Charles E. Johnson, and Stefan Schweizer.
*Materials* **11** 828 (2018).
39. Magnetic interactions in Fe1-xMxSb2O4, M = Mg, Co, deduced from Mössbauer spectroscopy.
Frank J. Berry; Benjamin P de Laune; Colin Greaves; Hien-Yoong Hah; Charles Johnson; Jacqueline A Johnson; Saeed Kamali; Jose F Marco; Michael F Thomas; and Mariana J Whitaker.
*Hyperfine Interactions* **239**:31 (2018) https://doi.org/10.1007/s10751-018-1501-7.
40. Synthesis of Iron Nanoparticles for Enhanced MRI Contrast Agents.
J. E. King, H-Y Hah, C.E. Johnson, J.A. Johnson, M.D. Pawel, A.J. Rondinone, K.C. Kirkbride, and T.D. Giorgio.
*Journal of Nanoscience with Advanced Technology* **2** 14-19(2018).

**Book Chapters/Manuals**

1. The structure of industrial glasses probed by Mössbauer Spectroscopy.
C.E. Johnson, K.F.E. Williams, and J.A. Johnson.
Chapter 7 in *Mössbauer Spectroscopy Applied to Magnetism and Materials Science,*Volume **2.** Edited by Gary J. Long and Fernande Grandjean (Plenum Press, New York
1996) pp 153-166.
2. The GLAD manual: A guide to performing experiments on the Glass, Liquids, and Amorphous Materials diffractometer at IPNS.
J. A. Johnson, A. J. G. Ellison, and D. L. Price.
IPNS manual, Argonne National Laboratory, US (1999).
3. Chapter: Down-conversion in rare-earth doped glasses and glass ceramics.
Book: Photon management in Solar Cells, Ed. R. Wehrspohn et al. (Wiley-VCH 2015).
S. Schweizer, C. Paßlick, F. Steudel, M. Dyrba, B. Ahrens, P.-T. Miclea, J. A. Johnson, K. Baumgartner, R. Carius.
*Published March 27 2015 by VCH Wiley Books (2015)*.
4. Chapter: Up-conversion for enhanced efficiency of solar cells.
Book: Photon management in Solar Cells, Ed. R. Wehrspohn et al. (Wiley-VCH 2015).
J. C. Goldschmidt, S. Fischer, H. Steinkemper, B. Herter, S. Wolf, F. Hallermann, G. von Plessen, J. A. Johnson, B. Ahrens, Paul-T. Miclea, S. Schweizer. *Published March 27 2015 by VCH Wiley Books (2015)*.
5. Chapter: Glass Ceramic Scintillators. Book: Nanocomposite, ceramic and thin film scintillators
Jacqueline A. Johnson, Russell L. Leonard, Carlos Alvarez, Brooke Bartaand Stefan Schweizer.
ISBN 9789814745222 *Published* November 11, 2016
6. Chapter Title: Scintillating Glasses. Handbook Section: Optical and Photonic Applications.
Jacqueline Anne Johnson and Russell Lee Leonard.
*Accepted by* Springer Handbook Program – The Springer Handbook of Glass (2018).
7. Chapter title: MR Guided Laser Induced Thermal Therapy of Glioblastoma.
Book: Glioblastoma: State-of-the-Art Clinical Neuroimaging
Johnson, Jacqueline A., Ph.D., King, Julie. *Accepted by* Nova Science Publishers Inc. (2018).

**Invited Lectures at Conferences and Universities**

1. Tin Mössbauer in glass (1994).
Jacqueline A. Johnson
University of Liverpool, UK.
2. Mössbauer spectra of tin in float glass (1994).
Jacqueline A. Johnson
4th Seeheim Workshop, Germany.
3. A Mössbauer study of tin at the surface of float glass (1995).
Jacqueline A. Johnson.
Argonne National Laboratory, Chicago, Illinois, USA.
4. A material science approach to nanomaterials: The case of selenium (1997).
Jacqueline A. Johnson
Argonne National Laboratory, Chicago, Illinois, USA.
5. Transition metals in glass. A structural study (1997).
Jacqueline A. Johnson.
University of Rolla, Rolla, Missouri, USA.
6. Ternary alkali stannosilicate glasses: A Mössbauer and neutron study (1999).
Jacqueline A. Johnson.
University of Wales, Aberystwyth, U.K.
7. Through a glass, darkly (1999).
Jacqueline A. Johnson.
University of Virginia, Charlottesville, USA.
8. Seeing our way through glass (2000).
Jacqueline A. Johnson.
Intense Pulsed Neutron Source, Argonne, USA.
9. Materials research at Argonne National Laboratory (2001).
Jacqueline A. Johnson.
University of Alaska, Fairbanks, USA.
10. Cation coordination in oxychloride glasses (2001).
Jacqueline A. Johnson
Intense Pulsed Neutron Source, Argonne, USA.
11. Past, present and future: Materials in Argonne National Laboratory (2001).
Jacqueline A. Johnson.
Coe College, Cedar Rapids, Iowa, USA.
12. NanoScience at Argonne National Laboratory: The small and the big picture (2001).
Jacqueline A. Johnson.
DOE EPSCoR Workshop, Brookhaven National Laboratory, New York, USA.
13. Structure and properties of complex glasses (2001).
Jacqueline A. Johnson, Charles E. Johnson, and Diane Holland.
VII International Conference on Advanced Materials, Cancun, Mexico.
14. Glass science at a National Laboratory (2002).
Jacqueline A. Johnson
Glass and Optical Materials Division Fall Meeting, AcerS, Pittsburgh, USA.
15. Structure-property relationships in optically active glasses (2003).
Jacqueline A. Johnson, Marcos H. Grimsditch, and J. K. Richard Weber.
Glass and Optical Materials Division Fall Meeting, AcerS, Corning, USA.
16. Structure and properties of novel rare earth-doped glasses (2004).
Jacqueline A. Johnson, J. K. Richard Weber, Marcos H. Grimsditch, Stefan Schweizer, Douglas R. MacFarlane, Martin Spaeth, and Francesco de Carlo.
American Association for the Advancement of Science, Seattle, USA.
17. Effects of surface adsorbates on friction and wear of diamondlike carbon films (2004).
Ali Erdemir and Jacqueline A. Johnson.Frontiers in Tribology at the Atomic Scale, Oak Ridge, USA.
18. Secure fingerprint module (2004).
Jacqueline A. Johnson.
Office of Technology Transfer and Commercialization Technology Panel Presentations, California State University, San Bernadino, USA.
19. Can we move on from X-ray film? (2004).
Jacqueline A. Johnson,Francesco de Carlo, John B. Woodford, Gang Chen, J. K. Richard Weber, Scott Hampton, Douglas R. MacFarlane, Stefan Schweizer, and Martin Spaeth.
Biomedical Engineering Series of Lectures, IIT, Chicago, USA.
20. Characterization of carbon materials for hydrogen storage (2005).
Jacqueline A. Johnson.
Northwestern University, Evanston, USA.
21. Manipulation effects in chemical-mechanical planarization (2005).
Milind Kulkarni, Dedy Ng, Hong Liang, Jacqueline A. Johnson, and Alex Zinovev.
IMIC - Tenth International Conference on Chemical-Mechanical Polishing, Fremont, USA.
22. A 2D x-ray detector made from glass (2005).
Jacqueline A. Johnson, Gang Chen, Francesco de Carlo, John B. Woodford, J. K. Richard Weber, Scott Hampton, Douglas R. MacFarlane, Stefan Schweizer, and Martin Spaeth,
User Science Seminar, Advanced Photon Source, Argonne, USA.
23. Deposition and Characterization of Super-low Friction Carbon Films on Glass and Ceramic Substrates (2005).
Ali Erdemir, Osman L. Eryilmaz, Jacqueline A. Johnson, Oyelayo O. Ajayi.
107th Annual Meeting and Exposition of the American Ceramic Society, Baltimore, USA.
24. The joy of working at a National Laboratory (2005).
Jacqueline A. Johnson.
107th Annual Meeting and Exposition of the American Ceramic Society, Baltimore, USA.
25. Characterization of thin films at facilities large and small (2005).
Jacqueline A. Johnson, Robert E. Erck, Osman L. Eryilmaz, Ali Erdemir, and John B. Woodford
XIV International Materials Research Congress, Cancun, Mexico.
26. Medical x-ray imaging plates (2005).
Jacqueline A. Johnson, Stefan Schweizer, Gang Chen, and J. K. Richard Weber.
The Medical Imaging Research Center, IIT, Chicago, USA.
27. Around the Ring (2006).
Jacqueline A. Johnson.
BioCARS, Advanced Photon Source, Argonne, USA.
28. Multifunctionality of optically-active nanoparticles in fluorozirconate glasses (2006).
Stefan Schweizer and Jacqueline A. Johnson.
Department of Engineering, Northern Illinois University, DeKalb, USA.
29. 2D glass-ceramic plate for mammography (2006).
Jacqueline A Johnson and Stefan Schweizer.
 Cancer Research Center, University of Chicago, USA.
30. Nano-crystallized glasses for x-ray scintillation applications (2006).
Douglas R. MacFarlane, Peter Newman, Gang Chen, Jacqueline A. Johnson, and Stefan Schweizer.
International Symposium on Non Oxide and Optical Glasses, Department of Physics, Indian Institute of Science, Bangalore, India.
31. Grain rotation and deformation in ceramics (2006).
Gang Chen, Ulrich Lienert, Cinta Lorenzo–Martin, Jacqueline A. Johnson, Dileep Singh, and Jules Routbort.
International Workshop. Mechanical Properties in Advanced Materials: Recent Insights, June 7-11, 2006, Fuenteheridos, Spain.
32. Deformation Behavior and Joining of an MgF2 Optical Ceramic (2006)
C. Lorenzo–Martin, D. Singh, J. Johnson, and J. L. Routbort
International Workshop. Mechanical Properties in Advanced Materials: Recent Insights, Fuenteheridos, Spain.
33. Fluorozirconate-based glass ceramic x-ray detectors for digital radiography (2006).
Stefan Schweizer and Jacqueline A. Johnson.
6th European Conference on Luminescent Detectors and Transformers of Ionizing Radiation (LUMDETR 2006), Lviv, Ukraine.
34. A Glass-Ceramic Plate for Medical, Energy, and Homeland Security Applications (2006).
Jacqueline A. Johnson and Stefan Schweizer.
EPIR Technologies, Inc., Bolingbrook, USA.
35. Sensors and Contraband Detection - Homeland Security Applications (2006).
Jacqueline A. Johnson, Stefan Schweizer, J. P. Allain, Ali Erdemir, Millie Firestone, Brian Reiss, Paul Raptis, Shuh-Haw Sheen, and George Fenske.National Security matrix meeting, Argonne, USA.
36. Super solar cell efficiencies using glass ceramics (2006).
Jacqueline A. Johnson, Stefan Schweizer, Amanda Petford-Long, and Peter Zapol.
Solar and Biomass matrix meeting, Argonne, USA.
37. Nanocrystalline scintillators in a glass matrix for both active and passive radiological and explosives detection (2006).
Jacqueline A. Johnson, Stefan Schweizer, and Chris Deemer.
Presentation to the National Security Associate Laboratory Directorate (ALD), Argonne, USA.
38. Nanocrystalline scintillators for Homeland Security (2006).
Jacqueline A. Johnson, Stefan Schweizer, and Chris Deemer.
Presentation to the National Nuclear Security Administration, Argonne, USA.
39. Glass Ceramics and Medical Imaging (2007).
Jacqueline A. Johnson.
Colloquium, San Diego State University, USA.
40. Glass Ceramics – Science and Applications (2007).
Jacqueline A. Johnson.
Colloquium, Ohio University, USA.
41. Scintillating Nanoparticles for Medical Imaging (2007).
Jacqueline A. Johnson.
Colloquium, St. Johns University, USA.
42. Optically Active Barium Halide Nanocrystals in Glasses for Radiation Detection (2007)
S. Schweizer, J. Selling, B. Henke, B. Ahrens, J. A. Johnson.
Advanced Wide Band Gap Materials for Radiation Detectors MATRAD 2007, Sinaia, Romania.
43. The Character and Application of Glass Ceramics and Diamond-Like Carbon. (2007).
Jacqueline A. Johnson.
Colloquium, University of Tennessee Space Institute, USA.
44. Optical Applications of Glass Ceramics. (2007).
Jacqueline A. Johnson.
Colloquium, Clemson University, USA.
45. Up-conversion in glasses and glass ceramics for photovoltaic applications (2007).
Stefan Schweizer, Bernd Ahrens, Bastian Henke, Paul T. Miclea, and J.A. Johnson.
Photon Management in Solar Cells,Bad Honnef, Germany.
46. A new mammography plate and other health-related applications of materials (2008).
Jacqueline A. Johnson.
University of Tennessee Knoxville, USA.
47. Mammography and Prosthesis Coatings (2008).
Jacqueline A. Johnson.
Colloquium, Vanderbilt University, USA.
48. Working at a National Laboratory –When to transition to a university and why (2008).
Jacqueline A. Johnson.
Glass and Optical Materials Division of the American Ceramic Society, Tucson, USA
49. Mammography and Prosthesis Coatings alias Glass Ceramics and Diamond-like Carbon (2008).
Jacqueline A. Johnson.
Colloquium, Coe College, USA.
50. Europe vs. USA and National Laboratory *vs.* University (2008).
Jacqueline A. Johnson.
2nd International Congress on Ceramics, Verona, Italy
51. Nanoscience in Mammography (2008).
Jacqueline A. Johnson.
Colloquium, Temple University, USA.
52. Materials for Mammography (2008).
Jacqueline A. Johnson.
Presentation to President Peterson of the University of Tennessee Knoxville at the
University of Tennessee Space Institute, USA.
53. Nanomaterials in Medical Imaging (2008).
Jacqueline A. Johnson.
Colloquium, University of Missouri, Rolla, USA.
54. Biomedical materials - A new mammography image plate and implant coatings (2008).
Jacqueline A. Johnson.
Colloquium, Texas A&M University, College Station, USA.
55. Mammography and Implant Coatings (2008).
Jacqueline A. Johnson.
VINSE Colloquium, Vanderbilt University, USA.
56. Materials design for medical applications (2009).
Jacqueline A. Johnson
Colloquium, University of Memphis, Memphis, USA.
57. Applications and Future Challenges in X-ray Imaging (2009).
Jacqueline A. Johnson and Stefan Schweizer.
ASME Summer Heat Transfer Conference, San Francisco, USA.
58. Multi-functionality of fluorescent nanocrystals in glass ceramics (2009).
S. Schweizer, B. Henke, M. Dyrba, P. T. Miclea, B. Ahrens, M. Secu, and J. A. Johnson.
7th International Conference on Luminescent Detectors and Transformers of Ionizing Radiation (LUMDETR), Kraków, Poland.
59. ZBLAN glasses for imaging plates and solar up-conversion (2009)
Jacqueline A. Johnson
Seminar, Oak Ridge National Laboratory, Oak Ridge, USA.
60. What goes on in the lab? (2009)
Jacqueline A. Johnson
Seminar, University of Tennessee Space Institute, Tullahoma, USA.
61. Progress on up-converted fluorescence in Er-doped fluorozirconate-based glass ceramics for high efficiency solar cells. (2010)
Stefan Schweizer, Bastian Henke, Bernd Ahrens, Paul T. Miclea, and Jacqueline A. Johnson.
*Photonics for Solar Energy Systems: SPIE Photonics Europe,* Brussels, Belgium.
62. Science and Engineering of Materials for Medical Applications. (2010)
Jacqueline A. Johnson
Seminar, Old Dominion University, Norfolk, USA.
63. Materials and Medicine. (2010)
Jacqueline A. Johnson
Colloquium, San Diego State University, San Diego, USA.
64. Materials for Medical Applications. (2010)
Jacqueline A. Johnson
Seminar, University of Tennessee, Knoxville, USA.
65. The Physics of Materials for Medical Applications (2010).
Jacqueline A. Johnson
Seminar, SUNY, Binghamton, USA.
66. Materials Design for Medical Imaging (2010).
Jacqueline A. Johnson
Seminar, Wright State University, Dayton, USA.
67. Mammography Image Plates and Coatings for Implants (2010).
Jacqueline A. Johnson
Seminar, Rhodes College, Memphis, USA.
68. Mössbauer spectroscopy of europium-containing glasses (2011).
C.E. Johnson, M. Vu, J.A. Johnson, D.E. Brown and R.J.K. Weber.
***The Sixth Nassau-Argonne Mössbauer International Symposium*, New York, USA.**
69. **A mother in science. (2011)**Jacqueline A. Johnson ***Sustainability Women Engineering Conference* (Knoxville, USA).**
70. **Medical Imaging and other fun projects (2011).
Jacqueline A. Johnson.
Seminar, MABE Department, University of Tennessee, Knoxville, USA.**
71. Charge Collection and Photon Conversion for Radiation Sensing(2011).
**Jacqueline A. Johnson.**UTK & Y-12 Partnership in Technology Forum (Oak Ridge, USA).
72. ZBLAN glass ceramics for X-ray imaging (2011).
Jacqueline A. Johnson, Christian Paßlick and Stefan Schweizer.
***PacRim 9 - The 9th International Meeting of Pacific Rim Ceramic Societies* Cairns, Australia.**
73. **Developing an x-ray image plate – engineering the material** (2011).
Jacqueline A. Johnson
Seminar, Tennessee State University, Nashville, USA.
74. Fifty years of Mössbauer Spectroscopy: From alloys and oxides to glasses and nanoparticles. (2011)
C.E. Johnson and J.A. Johnson.
*International Conference on the Applications of the Mössbauer Effect* Kobe, Japan.
75. Luminescent Materials for Medical, Defense and Solar Applications (2011).
Jacqueline A. Johnson
Seminar, University of the South, Sewanee, USA.
76. ZBLAN glass ceramics for X-ray imaging (2012).
Jacqueline A. Johnson, Christian Paßlick and Stefan Schweizer.
***36th International Conference and Exposition on Advanced Ceramics and Composites* Daytona Beach, USA.**
77. Luminescent Materials for Devices (2012).
Jacqueline A. Johnson
Austin Peay, Clarksville, USA.
78. Study of Europium Valence in ZBLAN Imaging Plates (2012).
Jacqueline A. Johnson, S. Gray, C.E. Johnson, R. Weber, C. Paßlick and S. Schweizer.
*Glass and Optical Materials Division Annual Meeting, American Ceramic Society* St. Louis, USA.
79. Applications of Luminescent Materials (2012).
Jacqueline A. Johnson
Seminar, Xavier University, New Orleans, USA.
80. Graduate and Intern Opportunities at the UT Space Institute (2012).
Jacqueline A. Johnson
*Kentucky Nanotechnology Symposium* Bowling Green, USA.
81. Evolution of Nanocrystals in Fluorochlorozirconate Glasses.Carlos Alvarez, Yuzi Liu, Jacqueline Johnson and Amanda K. Petford-Long.
**EMC Workshop 8:** In situ **and Environmental Science: How Can Electron Microscopy and Spectroscopy Help?** *Argonne National Laboratory Users Meeting* (Argonne, USA, May 2012).
82. Glass ceramics for storage phosphor applications (2012).
C. Paßlick, J. A. Johnson, A. R. Lubinsky and S. Schweizer.
***8th International Conference on Luminescent Detectors and Transformers of Ionizing Radiation - LUMDETR* Halle (Saale) Germany.**
83. X-ray imaging enhancement with glass ceramic plates (2012).
Jacqueline Johnson, Lee Leonard, Sharon Gray, Christian Paßlick, Carlos Alvarez, Stefan Schweizer and Amanda Petford‐Long.
*Innovations in Biomedical Materials 2012* Raleigh, USA.
84. On Optical Imaging of Tissue: Aspects of Photo-Acoustic Femtosecond Spectroscopy (2012).
Christian G. Parigger, Jacqueline A. Johnson, and Robert Splinter
*34th Annual International Conference on the IEEE Engineering in Medicine and Biology* San Diego, USA.
85. Glass Ceramics for Radiation Detection (2012).
Jacqueline Anne Johnson, Rick Lubinsky and Stefan Schweizer.
*Materials Science & Technology 2012 Conference & Exhibition* Pittsburgh, USA.
86. Physiological Sensing through Tissue with Femto-second Laser Radiation (2012).
Christian G. Parigger, Jacqueline A. Johnson and Robert Splinter.
International Conference on *High Capacity Optical Networks and Emerging/Enabling Technologies (HONET)* Istanbul, Turkey.
87. Mössbauer Spectra and Superparamagnetism of Europium Sulfide Nanoparticles (2013).
C.E. Johnson, L. Costa, J.A. Johnson, D.E. Brown, S. Somarajan, W. He and J.H. Dickerson.
*7th North American Mössbauer Symposium*, Austin, USA.
88. X-ray imaging enhancement using nanoscience (2013).
Jacqueline Johnson, Lee Leonard, Carlos Alvarez, Sharon Gray, Rick Lubinsky, Amanda Petford-Long, Stefan Schweizer and Charles Johnson.
[*37th International Conference and Expo on Advanced Ceramics and Composites*](http://ceramics.org/meetings/37th-international-conference-and-expo-on-advanced-ceramics-and-composites) Daytona Beach, USA.
89. Nanoparticles in Medicine (2013)
Jacqueline Johnson
Seminar, Middle Tennessee State University, Murfreesboro, USA.
90. Nanostructured bio-ceramic x-ray imaging plate (2013).
Jacqueline Johnson, Lee Leonard, Hien-Yoong Hah, Carlos Alvarez, Rick Lubinsky, Amanda Petford-Long and Charles Johnson.
*10th Pacific Rim Conference on Ceramic and Glass Technology* San Diego, USA.
91. Nanoparticles in Medicine (2013).
J. A. Johnson, L. Leonard, C. Alvarez, C. E. Johnson, S. Schweizer, R. Lubinsky, A. Petford-Long, S. Clare and T. Gorgio.
*8th Pacific Rim International Conference on Advanced Materials and Processing*, Hilton Waikoloa Village, Big Island of Hawaii, USA.
92. Nanoparticles in Medicine/Graduate Opportunities and Internships (2013).
Jacqueline A. Johnson
Seminar, University of North Georgia, Dahlonega, USA.
93. γ-ray imaging enhancement using nanoscience (2014).
Russell Lee Leonard, Julie King, Jacqueline Johnson and Schweizer, Stefan.
[*38th International Conference and Expo on Advanced Ceramics and Composites*](http://ceramics.org/meetings/37th-international-conference-and-expo-on-advanced-ceramics-and-composites) Daytona Beach, USA.
94. Radiation Detection: The case for glass ceramics (2014).
Jacqueline Anne Johnson
Seminar, Oak Ridge National Laboratory, Oak Ridge, USA.
95. Nanoscience in Imaging (2014).
Jacqueline Anne Johnson
Lightening talk, Symposium, Institute of Biomedical Engineering (iBME), Knoxville, USA.
96. Nanocrystalization in Fluorochlorozirconate Glasses (2014).Carlos J. Alvarez, R. Lee Leonard, Julie King, Jacqueline A. Johnson, Amanda K. Petford-Long.
*Argonne National Laboratory Users Meeting* (Argonne, USA)
97. Gamma-Ray CR using an FCZ Glass-Ceramic Storage Phosphor Plate (2014).
R.L. Leonard1, S.K. Gray1, C.J. Alvarez2, A.K. Moses3, L.F. Arrowood, A.R. Lubinsky4, A.K. Petford-Long and J.A. Johnson.
*Consolidated Nuclear Security LLC*, MOU signing with UT, Oak Ridge, USA.
98. Computed radiography with glass ceramic imaging plates (2015)
Jacqueline A. Johnson, Russell Lee Leonard, Sharon Gray, Richard Lubinsky, RichardWeber; and Stefan Schweizer.
[*39th International Conference and Expo on Advanced Ceramics and Composites*](http://ceramics.org/meetings/37th-international-conference-and-expo-on-advanced-ceramics-and-composites) Daytona Beach, USA.
99. Gamma-Ray Computed Radiography using a Fluorochlorozirconate Glass-Ceramic Storage Phosphor Plate (2015).
Jacqueline A. Johnson
*Seminar: The Center for Research and Education in Optics and Lasers (CREOL),* University of Central Florida.
100. *In situ* techniques to characterize glass ceramics (2015).
Jacqueline Anne Johnson, Russell lee Leonard, Carlos Alvarez, Amanda Petford-Long.
*Materials Science & Technology 2015*, Columbus, OH, USA
101. γ-ray and neutron imaging enhancement using nanoscience (2016).
Jacqueline A. Johnson and Russell Lee Leonard.
[*40th International Conference and Expo on Advanced Ceramics and Composites*](http://ceramics.org/meetings/37th-international-conference-and-expo-on-advanced-ceramics-and-composites) Daytona Beach, USA.
102. Computed Radiography using a Fluorochlorozirconate Glass-Ceramic Storage Phosphor Plate (2016).
Jacqueline A. Johnson and Russell L. Leonard.
*Seminar: Tennessee Technological University,* Cookeville, TN, USA.
103. Glasses doped with trivalent rare-earth ions as photon downshifters for photovoltaic applications (2016).
Franziska Steudel, Sebastian Loos, Bernd Ahrens, Russell L. Leonard, Jacqueline A. Johnson and Stefan Schweizer. *Materials Challenges in Alternative & Renewable Energy 2016*, Clearwater Beach, USA.
104. Iron nanoparticles for Theranostics in Glioblastoma Multiforme.
Jacqueline Johnson, Julie King, Charles Johnson.
*UT CORNET Cancer Conference* (Murfreesboro, USA November 2016).
105. Science of Search and Rescue Dogs-Outreach presentation
Jacqueline Anne Johnson
*Hands on Science Center*, (Tullahoma, TN, USA July 2017).
106. Antifogging Diamond-like Carbon Coatings for Laparoscope Lenses (2018).
Adam W. Evans, R. Lee Leonard, and Jacqueline A. Johnson
[*42nd International Conference and Expo on Advanced Ceramics and Composites*](http://ceramics.org/meetings/37th-international-conference-and-expo-on-advanced-ceramics-and-composites) Daytona Beach, USA.
107. Luminescent Glasses and Glass Ceramics for Radiation Detection in Imaging Applications
Charles W. Bond, Adam W. Evans, Julie E. King, Jacqueline A. Johnson, R. Lee Leonard
and A. Richard Lubinsky.
*2018 Glass and Optical Materials Division (GOMD) Annual Meeting*, San Antonio, USA.
108. Magnetic Interactions in Fe1-xMxSb2O4, M=Mg,Co, Deduced from Mössbauer Spectroscopy.
F.J.Berry, B.P.de Laune, C.Greavesa , H.-Y.Hah, C.E.Johnson, J.A. Johnson, S. Kamali, J.F.Marco, M.F.Thomas and M.J.Whittaker.
*4th Mediterranean Conference on the Applications of the Mössbauer Effect (MECAME 2018*), Zadar, Croatia.
109. Thin Film Storage Phosphors for Medical Imaging.
Jacqueline A. Johnson, Charles W. Bond, Russell Lee Leonard, Anthony Richard Lubinsky, Yu Jin Shin and Amanda Petford-Long.
*Materials Science & Technology 2018 (MS&T 2018)*, Columbus, OH, USA

**Contributed Lectures at Conferences**

1. Tin silicate glasses.
D. Holland, M.M. Karim, C.E. Johnson, K. Williams, and J.A. Johnson.
*The 2nd International Conference of the European Society of Glass* (Venice, Italy, 1993).
2. The variation in f-factor of Sn2+ and Sn4+ in tin doped glasses.
K. Williams, C.E. Johnson, J.A. Johnson, D. Holland, and M.M. Karim.
*The Royal Society of Chemistry 34th Mössbauer Spectroscopy Discussion Group
Meeting* (Nottingham, UK, 1993).
3. The Mössbauer effect of tin doped float glass and the temperature dependence of the
f- factor.
K. Williams, C.E. Johnson, J.A. Johnson, D. Holland, and M.M. Karim.
*The Society of Glass Technology New Researchers Forum on Glass* (Warwick, UK, 1993).
4. Novel contactor for the treatment of aqueous waste.
C. Dyson, D. Phipps, and J.A. Johnson.
*The ACHEMA Trade Fair* (Frankfurt, Germany, 1994).
5. Mössbauer spectra of tin silicate binary glasses, float glass and tin doped float glass.
K. Williams, C.E. Johnson, J.A. Johnson, D. Holland, and M.M. Karim.
*The Royal Society of Chemistry 35th Mössbauer Spectroscopy Discussion Group Meeting* (Nottingham, UK, 1994).
6. Mössbauer spectra of tin in float glass.
K. Williams, C.E. Johnson, J. Greengrass, B. Tilley, and J.A. Johnson.
*Condensed Matter and Materials Physics Conference* (Warwick, UK, 1994).
7. The enhancement of oxygen transfer by the use of mixing devices.
R.M. Al-Khaddar and J.A. Johnson.
*Putting a Price on Water* (Bahrain, 1995).
8. A novel high efficiency plant for oxygen transfer.
J.A. Johnson, C. Dyson, and D.A. Phipps.
*Third International Conference on Water Pollution* (Porto Carras, Greece, 1995).
9. Home energy performance fails to meet objectives.
J.A. Johnson.
*First Interdisciplinary Conference on the Environment* (Boston, USA, 1995).
10. A comparison of the surface and bulk of iron-containing (tinted) float glass by Mössbauer spectroscopy.
K. Williams, M.F. Thomas, C.E. Johnson, J. Greengrass, B. Tilley, and J.A. Johnson.
*The Royal Society of Chemistry 36th Mössbauer Spectroscopy Discussion Group
Meeting* (Nottingham ,UK, 1995).
11. Oxidation states of tin and iron in clear and tinted float glass by Mössbauerspectroscopy.
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26. Image Guided Surgery for Resource-limited CountriesDr. Susan E. Clare, Dr. Catherine Jones Murphy, Dr. Jacqueline A. Johnson
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28. Crystallization in Fluorochlorozirconate Glasses.Carlos Alvarez, Yuzi Liu, Russell L. Leonard, Jacqueline Johnson, and Amanda Petford-Long.
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J. King, R. Leonard and J. Johnson.
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30. Motional narrowing in Mössbauer spectra of superparamagnetic Fe3O4 nanoparticles.
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J.E. Swafford, H-Y Hah1, C.E. Johnson, J.A. Johnson, M.D. Pawel, A.J. Rondinone, K.C. Kirkbride and T. Giorgio.
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32. Doped LiSiBaB Neutron Scintillators.
J. E. Swafford, R. L. Leonard and J. A. Johnson.
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33. Mössbauer spectroscopy of Na-ion batteries with SnSb, Sb and Cu2Sb Electrodes.
H-Y. Hah, C. E. Johnson J. A. Johnson, L. Baggetto and G. M. Veith.
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35. Mössbauer studies of rechargeable Na-ion batteries for medical applications.
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*8th North American Mössbauer Symposium* (Boston, USA January 2015).
37. The effect of trivalent iron on the properties of fluorochlorozirconate glass ceramic.
Adam Evans, Jason Hah, Russell Leonard, Charles Johnson and Jacqueline A. Johnson.
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38. Computed radiography at keV and MeV energies using glass-ceramic imaging plates.
Adam Evans, Alex Moses, Lloyd Arrowood, Rick Lubinsky, Lee Leonard and Jacqueline Johnson
*DGG – ACerS GOMD* (Madison, USA May 2016).
39. Optimization of Borate Silica Glass Ceramics doped with Rare Earths for Fast Neutron Scintillation.
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*CerSJ-GOMD Joint Symposium on Glass Science and Technologies* (Kyoto, Japan November 2016).
40. Energy transfer in Tb3+/Eu3+ doped borate and fluorozirconate glasses.
Mreedula Mungra, Franziska Steudel, Adam Evans, Russell L. Leonard, Jacqueline A. Johnson, Bernd Ahrens, Stefan Schweizer.*12th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 12), including Glass & Optical Materials Division Meeting (GOMD 2017)* (Waikoloa, Hawaii, USA May 2017).
41. Pulsed Laser Deposition of Transparent Fluoride Glass
Bond, Charles W.; Leonard, Russell L.; Wang, Renhan; Petford-Long, Amanda; Johnson, Jacqueline
*12th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 12), including Glass & Optical Materials Division Meeting (GOMD 2017)* (Waikoloa, Hawaii, USA May 2017).
42. Scintillating Glasses for Digital Radiography Flat Panel Imagers
A. R. Lubinsky, A. Howansky, R. L. Leonard, S. Dow, J. A. Johnson, and W. Zhao.
*2018 Glass and Optical Materials Division (GOMD) Annual Meeting*, San Antonio, USA.
43. Thin Film Storage Phosphors for Computed Radiography Applications.

Charles W. Bond, Russell Lee Leonard, Anthony Richard Lubinsky, Yu Jin Shin, Amanda Petford-Long, and Jacqueline A. Johnson
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1. Thin Film Storage Phosphors.

Charles W. Bond, Russell Lee Leonard, Anthony Richard Lubinsky, Yu Jin Shin, Amanda Petford-Long, and Jacqueline A. Johnson
*Corning Inc. Glass summit 2018 – Glass across boundaries,* Corning, New York, USA.