

Name and academic rank: Janet L. Gbur
 Doctoral Candidate Materials Science and Engineering
 Case Western Reserve University

Degrees: M.S.E. Mechanical Engineering Youngstown State University 2011
 B.E. ICP-Materials Engineering Youngstown State University 2008
 B.S. Biology/Pre-Medicine Kent State University 2006

Related experience:

2013-2015 Visiting Graduate Student, Biomedical Engineering, Cleveland Clinic, Lerner Research Institute
 2013 *Spring* Teaching Assistant, EMSE 303 Mechanical Behavior, Case Western Reserve University
 2012 *Fall* Teaching Assistant, EMSE 372 Materials Related to Design, Case Western Reserve University
 2012 *Spring* Teaching Assistant, EMSE 303 Mechanical Behavior, Case Western Reserve University
 2011-2016 Graduate Assistant, Materials Science and Engineering, Case Western Reserve University
 2008-2012 Engineering Intern-Research, CleveMed
 2010-2011 Research Assistant IV, Mechanical and Industrial Engineering, Youngstown State University
 2010 *Fall* Teaching Assistant, ENGR 1550 Engineering Concepts, Youngstown State University
 2010 *Summer* Lab Assistant II, Mechanical and Industrial Engineering, Youngstown State University
 2010 *Spring* Lab Assistant I, Mechanical and Industrial Engineering, Youngstown State University
 1991-1992 Student Intern, Department of Orthotics and Prosthetics, The Cleveland Clinic Foundation
 1990-1991 Student Intern, Shamp Prosthetic Orthotic Clinic, Inc. and Shamp Professional Center, Inc.

Consulting and patents:

Patent application: "Electrode for Measuring Electrophysiological Signals," Application No. 12/509,858
 Filing date July 27, 2009, Attorney docket No. CMD-071

Professional society membership:

ACerS, The American Ceramic Society
 AIST, Association for Iron & Steel Society
 ASEE, American Society for Engineering Education
 ASM International
 ASTM International
 E04, Metallography; E08, Fatigue and Fracture; and E28, Mechanical Testing, Committee Member
 MSA, Microscopy Society of America
 MRS, Materials Research Society
 MSNO, Microscopy Society of Northeastern Ohio
 Student Board Member
 SAMPE, Society for the Advancement of Material and Process Engineering
 SWE, Society of Women Engineers
 TMS, The Minerals, Metals and Materials Society
 Biomaterials Committee, Committee Member

Certifications:

Mechanical Testing Certificate, ASM International, April 2016
 Metallurgy for the Non-Metallurgist Certificate, ASM International, January 2016
 Advanced Metallographic Techniques Certificate, ASM International, December 2015
 Metallographic Interpretation Certificate, ASM International, November 2015
 Titanium and Its Alloys Certificate, ASM International, October 2015
 Metallographic Techniques Certificate, ASM International, September 2015
 Microscopy of Soft-Matter Materials Certificate, MSNO, July 2015
 Faculty Preparation Certificate, CWRU, July 2015
 NIH Responsibility in Research, May 2012
 Laboratory & Animal Care Use, NEOUCOM IACUC, May 2010

Honors and awards:

TMS Henry DeWitt Smith Scholar (\$2,000), 2016
ASTM International Graduate Scholarship Recipient (\$10,000), 2015
Zeta Tau Alpha Foundation, Ruby Leigh Orgain Founders Grant Recipient (\$9,000), 2015
ASTM Committee E08 on Fatigue and Fracture, M. R. 'Mitch' Mitchell Best Student Presentation Award, 2014
Youngstown State University Graduate Commencement Speaker, May 2011
Omicron Delta Kappa, 2010
Golden Key International Honour Society, 2009
Order of the Engineer, 2007
Honor Ring, Zeta Tau Alpha Fraternity (highest service award given nationally to an individual), 2002
Who's Who Among Students in American Universities and Colleges, 1995-1996
Arby's Scholarship Award for Outstanding Undergraduate Student Leader, 1995
Order of Omega, 1995

Institutional and professional service:

University committees and service:

Microscopy Society of Northeastern Ohio, Student Board Member, 2016
Case Western Reserve University, Engineering Standards Workshop, Event Organizer, 2015
Youngstown State University, Pete's Pride, Member, 2014-2016
Case Western Reserve University, Materials Research Society University Chapter, Founding President, 2013
Case Western Reserve University, WISER Program, Volunteer for Introduce a Girl to Engineering Day, 2013
Case Western Reserve University, Graduate Materials Society, President, 2012-2013
ASM Materials Camp Student Assistant at Youngstown State University, 2010
Youngstown State University, Board of Trustees Student Trustee, Student Affairs Committee Member, 1995
Youngstown State University, Board of Trustees Student Trustee, Intercollegiate Athletics Committee Member, 1995

Community, professional and public discipline related service:

Choose Ohio First Poster Conference, Judge, 2015
Lake to River Science Day, Judge, 2015
Marching Auxiliaries National Championships, Twirling Panel Judge, 2015
Hawken School, STEMM Symposium Judge, 2013-2014
Solon Middle School Science Fair, Judge, 2011, 2013, and 2014
Northern Strut Twirling Teams, Owner/Director, 1995-2014
Boardman High School, Spartan Twirler Instructor, 2002-2013, 2015-2016
The Junior League of Youngstown, Pink Ribbon Tea Committee Member, 1997-2013
Case Western Reserve University, Intersections Judge, 2012
Zeta Tau Alpha Fraternity, National Co-Chair Advisor Academy for Leadership Development, 2000-2004
Youngstown Panhellenic Association, Membership Co-Chair, 1999-2001
The Junior League of Youngstown, Board of Directors, 1997-2001
Zeta Tau Alpha Fraternity, Province President XII-A, 1997-2000
Zeta Tau Alpha Fraternity-Zeta Gamma Chapter, General Advisor, 1996-1997

Professional development:

Publications:

"Promoting Technical Standards Education in Engineering" J. L. Gbur and D. Solomon, ASEE's 123rd Annual Conference & Exposition Proceedings, Paper ID #14882, accepted April 12, 2016.
"Fatigue and Fracture of Wires and Cables for Biomedical Applications" J. L. Gbur and J. J. Lewandowski, International Materials Reviews, accepted February 5, 2016.
"Mechanical Characterization of 316 LVM Wires: A Comparative Study of Flex Bending Fatigue and Rotating Bending Fatigue and its Utility in Fatigue Testing for Biomedical Applications" J. L. Gbur, ASTM Student Grant Paper, 2013.
"Biomechanical Response of Composite Bone Following Removal of Proximal Femoral Fixation Hardware" J. L. Gbur, Thesis, Youngstown State University Department of Mechanical and Industrial Engineering, May 4, 2011.

Funded grants:

- “Mechanical Characterization of 316 LVM Wires: A Comparative Study of Flex Bending Fatigue and Rotating Bending Fatigue and its Utility in Fatigue Testing for Biomedical Applications” (J. L. Gbur, PI), Case Western Reserve University, ASTM International Student Grant, Funded \$500.
- “Self Abrading Rapidly Applied (SARA) Electrode” Research Assistant (S. Weimer, PI), Cleveland Medical Devices, Inc., National Institute of Health 5R44NS053116-03, Funded \$469,640.
- “Self Abrading Rapidly Applied (SARA) Electrode” Research Assistant (S. Weimer, PI), Cleveland Medical Devices, Inc., National Institute of Health 2R44NS053116-02A1, Funded \$571,880.
- “Biomechanical Evaluation of Proximal Femur Failure Strength after Partial/Full Implant Removal” Research Assistant (H. Marie, PI), Youngstown State University, St. Elizabeth Health Partners Medical Research Committee, Funded \$10,000.
- “Biomechanical and Elastographic Analysis of Mesenchymal Stromal Cell Treated Tissue Following Surgery” Research Assistant (H. Marie, PI), Youngstown State University, St. Elizabeth Health Partners Medical Research Committee, Funded \$5,000.
- “Adherence Activity & Outcome Measure Belt for Yoga” Research Assistant (M. Tarler, PI), Cleveland Medical Devices, Inc., National Institute of Health 1R43AT004122-01, Funded \$245,093.
- “Clinical Step Recorder” Research Assistant (M. Tarler, PI), Cleveland Medical Devices, Inc., National Institute of Health 5R44HL083996-03, Funded \$695,678.
- “Hot Flash Ambulatory Monitor” Research Assistant (M. Tarler, PI), Cleveland Medical Devices, Inc., National Institute of Health 1R43AT003215-01, Funded \$250,000.
- “Novel Fast Install EEG Electrode” Research Assistant (S. Weimer, PI), Cleveland Medical Devices, Inc., National Institute of Health 1R43NS053116-01A2, Funded \$182,648.
- “Ultrathin Sensor of Force Direction and Magnitude” Research Assistant (M. Tarler, PI), Cleveland Medical Devices, Inc., National Institute of Health 5R44HD041853-03, Funded \$414,497.

Presentations:

- “Fatigue Analysis of Nitinol and Beta Titanium Arch Wires” J. L. Gbur, B. Benini, J. J. Lewandowski, TMS Annual Meeting – Advanced Materials in Dental and Orthopedic Applications Symposium, Orlando, Florida, March 2015.
- “Review: Fatigue and Fracture of Wires/Strands/Cables in Biomedical Applications” J. L. Gbur, J. J. Lewandowski, ASTM Committee E08 on Fatigue and Fracture Student Presentation Competition, New Orleans, Louisiana, November 2014.
- “Fracture and Fatigue of Wires and Cables for Biomedical Applications” J. L. Gbur, J. J. Lewandowski, MS&T Next General Biomaterials Symposium, Pittsburgh, Pennsylvania, October 2014.
- “Fracture and Fatigue of Wires Used in the Biomedical Industry” J. J. Lewandowski, H. Lavvafi, J. L. Gbur, J. J. Lewandowski, MS&T Next Generation Biomaterials: Metals for Medical Applications Symposium, Montreal, Quebec, Canada, October 2013.
- “Fatigue Analysis of Laser-Treated Nitinol Wires” J. L. Gbur, H. Lavvafi, M. Young, J. J. Lewandowski, TMS Annual Meeting – Physical and Mechanical Metallurgy of Shape Memory Wires, San Antonio, Texas, March 2013.
- “Bending Fatigue of Laser Machined 316LVM and Nitinol Wires,” J. L. Gbur, H. Lavvafi, M. Young, J. J. Lewandowski, ASTM Committee E08 on Fatigue and Fracture Student Presentation Competition, Atlanta, Georgia, November 2012.
- “Rotating Bending Fatigue and Flex Bending Fatigue of Nitinol and 316LVM Wires Used in the Biomedical Industry,” J. L. Gbur, H. Lavvafi, J. R. Lewandowski, M. Young, J. J. Lewandowski, MS&T Novel Methods for Deformation Testing of Metals and Materials Symposium, Pittsburgh, Pennsylvania, October 2012.
- “Parametric Studies on Femtosecond laser cutting of Ni-Ti Shape Memory Alloys,” H. Lavvafi, J. L. Gbur, J. R. Lewandowski, M. Young, J. J. Lewandowski, MS&T Novel Methods for Deformation Testing of Metals and Materials Symposium, Pittsburgh, Pennsylvania, October 2012.
- “Effects of Ultrafast Laser Micromachining on Structure and Mechanical Properties of 316 LVM Stainless Steel,” H. Lavvafi, J. L. Gbur, M. Young, D. Davinski, J. J. Lewandowski, TMS Fatigue and Corrosion in Metallic Materials: Fundamentals, Modeling and Prevention Symposium, Orlando, Florida, March 2012.
- “Biomechanical Response of Composite Bone Following Removal of Proximal Femoral Fixation Hardware” J. L. Gbur, Thesis Defense, Youngstown State University, May 2011; STEM Showcase, Youngstown State University, April 2011; Quest, Youngstown State University, Youngstown, Ohio, April 2011.

Posters:

- “Flex Bending Fatigue of Dental Archwires” J. L. Gbur, K. N. Gupte, J. J. Lewandowski, MSNO Annual Conference, John Carroll University, Cleveland, Ohio, May 2016.
- “A Review of Fatigue and Fracture of Wires and Cables for Biomedical Applications” J. L. Gbur, J. J. Lewandowski, Research ShowCASE, Case Western Reserve University, Cleveland, Ohio, April 2016.
- “Evaluation of Dental Archwires Following Flex bending Fatigue” J. L. Gbur, K. N. Gupte, B. Benini, J. J. Lewandowski, TMS Annual Meeting – Advanced Materials in Dental and Orthopedic Applications Symposium, Nashville, Tennessee, February 2016.
- “A Review of Fracture and Fatigue of Stranded and Coiled Wires Used in Biomedical Applications” J. L. Gbur, J. J. Lewandowski, MS&T Next Generation Biomaterials Symposium, Columbus, Ohio, October 2015.
- “Tension and Flex Bending Fatigue of Dental Archwires” J. L. Gbur, K. N. Gupte, I. A. Roth, B. Benini, J. J. Lewandowski, Research ShowCASE, Case Western Reserve University, Cleveland, Ohio, April 2015.
- “Fatigue and Fracture of Wires and Cables for Biomedical Applications” J. L. Gbur, J. J. Lewandowski, Research ShowCASE, Case Western Reserve University, Cleveland, Ohio, April 2014.
- “Rotating Bending and Flex Bending Fatigue of Oxide-Finished Nitinol Wire” J. L. Gbur, J. J. Lewandowski, TMS Annual Meeting – Biological Materials Science Symposium, San Antonio, Texas, March 2013; Research ShowCASE, Case Western Reserve University, Cleveland, Ohio April 2013.
- “Nitinol Commercialization Accelerator – Ohio Third Frontier” J. L. Gbur, J. R. Lewandowski, H. Lavvafi, M. Young, D. Schwam, J. D. McGuffin-Cawley, M. V. Nathal, S. Padula II, J. J. Lewandowski, Research ShowCASE, Case Western Reserve University, Cleveland, Ohio, April 2013; TMS Annual Meeting, Orlando, Florida, March 2012 and San Antonio, Texas, March 2013; SAS Annual Conference, Cleveland, Ohio, May 2012.

Mentored Students:

- Madeleine Mcallister, Case Western Reserve University, EMSE 125 Freshman Research, Spring Semester 2016.
- Ryan Sienballer, Case Western Reserve University, EMSE 125 Freshman Research, Fall Semester 2015.
- Ilana Roth, Case Western Reserve University, EMSE 125 Freshman Research, Spring Semester 2015.
- Kimaya Gupte, Case Western Reserve University, EMSE 325 Undergraduate Research, Spring and Fall Semesters 2015, EBME 328 Research Training, Fall Semester 2015.
- Nicole Corbin, Case Western Reserve University, EMSE 399 Senior Project in Materials, 2014-2015.
- Francesca Fabe, Beaumont School, AP Biology Research Project, Fall Semesters 2014 and 2015.
- “The Effects of Fatigue on 35N LT 28Ag DFT” F. Fabe
- Northeast Ohio Science and Engineering Fair, Second place, Cleveland Clinic - Lerner College of Medicine Award, Cleveland State University, Cleveland, Ohio, March 2016
 - BEST Medicine Engineering Fair, Silver Medal in Health and Medicine Category University of Akron, Akron, Ohio, March 2015.
- “Beta Ti vs. Nitinol Archwires: Time to Failure Caused by Fatigue” F. Fabe
- Northeast Ohio Science and Engineering Fair, First place, ASM International – Cleveland Chapter Special Award Cleveland State University, Cleveland, Ohio, March 2015.
 - BEST Medicine Engineering Fair, Gold Medal in Value-Driven Engineering and \$1000 Scholarship to the University of Akron University of Akron, Akron, Ohio, March 2015.
 - Western Reserve District V Science Fair, Advancement to State University of Akron, Akron, Ohio, March 2015.
 - State Science Day, OAS Excellent Award, \$2000 Capital University Scholarship, EWI Award 1st Place – Governor’s Award for Excellence in Materials Science, Engineering Achievement Award 3rd Place The Ohio State University, Columbus, Ohio, May 2015.
- Sahi Hari, Case Western Reserve University, EMSE 125 Freshman Research, Spring Semester 2014.
- Micah Jaffe, Hawken School, STEMM Program Research Project, Summer Session 2013.
- “The Fatigue Strength of Nitinol and Defining Tensile Testing Methods” M. Jaffe, J. L. Gbur, J. J. Lewandowski, Hawken School STEMM Symposium, Cleveland, Ohio, November 2013.