

# Curriculum Vitae

## Osama Jadaan, Ph.D.

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### EDUCATION

- **Ph.D.** - Engineering Science and Mechanics, Pennsylvania State University, 1990.
- **Master of Engineering** – Civil (Structural) Engineering, Pennsylvania State University, 1984.
- **B.S.** - Civil Engineering, Pennsylvania State University, 1982.

### EXPERIENCE

#### Academic Leadership Experience:

**ABET Program Evaluator:** Selected by ABET and the American Society for Engineering Education (ASEE) to become an ABET Program Evaluator. After 25 hours of online preparation, 3 assessment exams, and 2-day face-to-face intense training at ABET headquarters, I earned the status of ABET Program Evaluator during summer 2016.

**University Strategic Planning:** Selected by the new President of the University of Mount Union to team up with a select group of faculty, staff, students and administrators to draft the 2016-21 University Strategic Plan.

**Created Three New Engineering Programs at the University of Mount Union in 2017:** Worked with the administration, engineering faculty, university faculty, and the Board of Trustees to create three new engineering programs in Electrical Engineering, Computer Engineering, and Biomedical Engineering.

#### **Chair and Tenured Professor - Department of Engineering (Civil, Mechanical, Electrical, Computer, and Biomedical Engineering) at the University of Mount Union, July 2013-present:**

In 2014, I led the then new ME and CE Programs through successful initial ABET accreditations. Both Self Study Reports were selected by ABET as examples of well-prepared reports and displayed during the 2015 ABET annual symposium. In addition, I led the ME and CE programs through curriculum development, lab restructuring, new faculty hiring, budget management, strategic planning, industrial outreach, community outreach, student recruitment, student retention, and many other initiatives associated with the creation of new engineering programs. Under my leadership, engineering enrollment continues to increase, currently reaching 11% of total undergraduate enrollment in a 170-year old liberal arts university and an engineering department that had only existed for 6 years. The Mechanical Engineering Program is now drawing the second largest freshman class (after nursing), and the largest number of international students to the University of Mount Union.

**Contributions to the ABET accreditation efforts at UMU:**

- Led the preparation and hosted the accreditation team visit in October 2014.
- Led the preparation of the Self Study Reports (SSR) for both the Mechanical and Civil Engineering Programs.
- Led the creation of assessment plans for both ME and CE programs, including process, documentation, timeline, methods, and assessment tools. All details are outlined in the ME and CE SSRs.
- Led the effort of rewriting the Program Educational Objectives (PEOs) for both CE and ME programs.
- Led the creation of Criterion 4, Continuous Improvement, for both the ME and CE programs, including the definition of demonstrating attainment of Student Outcomes and the resulting actions for continuous improvement.
- Developed the Student Exit Survey as an indirect measure of assessing attainment of our Student Outcomes. I also worked with IT to have our students take the survey on line. I developed the process for mapping the exit survey questions to the Student Outcomes and carried out all data analysis.
- Both CE and ME programs were granted the full 6-year ABET accreditation.

**Responsibilities Include:**

- Led drafting the mission for the department.
- Led building an Engineering Advisory Board for the department and helped set the agenda for their meetings.
- Led lab development and organization.
- Led the curriculum development for both ME and CE programs.
- Led the accreditation process for both ME and CE.
- Hired tenure track faculty, adjunct faculty, and staff.
- Worked with admissions to effectively recruit high caliber students.
- Built relations with industry to provide internship and employment opportunities for our students.
- Managed the department budget.
- Mentored the young faculty to help them become effective teacher-scholars.
- Evaluated the faculty performance.
- Taught the equivalent of half load in ME and CE.

**Selected Accomplishments as Mechanical and Civil Engineering Chair:**

- Continuously grew student enrollment in engineering.
- Near 100% placement and internship rates for our students.
- Worked with marketing to promote our engineering programs into known and respected programs in Northeast Ohio and western Pennsylvania.
- Hired outstanding faculty focused on student engagement and development.

- Led the structuring and development of modern labs with cutting edge technological hardware and software.
- Raised funds for our senior design teams.

**Chair and Tenured Professor - Department of General Engineering at the University of Wisconsin-Platteville, 2008-June 2013:** Elected twice to chair the department, but left during my second term to chair the Civil and Mechanical Engineering Programs at the University of Mount Union. The Department faculty and college Dean consistently evaluated my performance as outstanding based on several criteria including vision, leadership skills, support for academic innovation, as well as actively promoting diversity in our engineering student population.

The General Engineering (GE) department was where all entering freshmen, pursuing degrees in one of UW-P's eight engineering majors, began their study. When I departed UW-P, more than 1600 students were matriculated in the GE department.

**Responsibilities Include:**

- Taught the equivalent of half-time load. My student and peer teaching evaluations were consistently among the best in the entire college and my sections were amongst the earliest to close.
- Effectively managed the rapid growth in undergraduate engineering student enrollment. During my tenure as chair between 2008 and 2013, enrollment grew by 70% from approximately 980 to about 1700 students.
- Was the academic leader for the department's nine faculty members, facilitating their efforts at effective teaching, advising, professional development, and service.
- Hired new faculty to meet the growing student population.
- Led and coordinated the advising and registration effort for all new freshmen (about 700 new freshmen during summer 2012). This included creating the registration schedules for each new freshman, as well as managing the role of engineering faculty and administrative support staff helping the students through the actual registration process.
- Was responsible for advising and registering all transfer engineering students.
- Advocated for high-impact educational practices, such as undergraduate research and project-based learning early on to heighten students' interest and improve retention in engineering.
- Met with all prospective engineering students and their parents.
- Conducted annual performance evaluations for the department faculty.
- Set the agenda (but also invited the faculty to add agenda items) and led department meetings.
- Recruited students through K-12 and community outreach.
- Diversified our engineering student populations through effective efforts to recruit women and underrepresented students.
- Strategized with the college Dean and engineering department chairs to keep our curriculum innovative and relevant to both industry and research institutions.

### **Selected Accomplishments as General Engineering Chair:**

- Introduced undergraduate research as high impact educational practice for engineering students during their freshman and sophomore years by creating a new course, GE 3000- Undergraduate Research in Engineering.
- Raised funds for GE faculty to sponsor students to work with them on their research projects.
- Grew the department's student population by about 70% between 2008 and 2013.
- Charged by the Dean to lead an effort, in consultation with industry, to study the possibility of creating a new interdisciplinary major in General Engineering. In April 2012, I met with a focus group from our Engineering Advisory Board. This group voted unanimously to move forward with creating a General/Interdisciplinary Engineering major.
- Led the creation, in collaboration with the chairs of all eight engineering majors at UW-P, of a new course in which all freshmen experience these majors hands-on.
- Created a very successful outreach Engineering Summer Program for high school students to explore the eight engineering disciplines offered at UW-P. Enrollment more than tripled over a three-year period.
- Increased the number of tenure-track faculty during my tenure for the first time in more than 20 years.
- Worked with Industry to fund scholarship for women, underrepresented groups, and students with financial need to attend the Summer Program free of charge (program costs \$755).

**Professor and Coordinator for the Minor in Microsystems and Nanotechnology (MSNT) - University of Wisconsin-Platteville since 2007:** Being an interdisciplinary field of study, this minor was housed in the department of General Engineering. In Fall 2011, the University of Wisconsin's Board of Regents granted UW-P a new major in Microsystems and Nanotechnology Engineering.

### **Responsibilities Include:**

- Chaired the inaugural faculty council charged with creating the MSNT minor, 2007-09.
- Taught a required course for this minor, Design and Simulation of MicroElectroMechanical Systems (MEMS) – GE 4320.
- Was research advisor and course faculty leader for the required GE 4000 course - Research in Microsystems and Nanotechnology. Involved undergraduate students with my NASA sponsored research on Probabilistic Design of MEMS Devices to satisfy this research component of their MSNT minor.
- Managed enrollment and recruiting for the minor.
- Led the MEMS component of the minor and acquired lab equipment.
- Helped transition the minor into the new department of MSNT.

**Select Accomplishments as Coordinator of the MSNT Minor and Faculty Member of the MSNT Major:**

- Successfully led and then worked as part of the team to create a new minor in MSNT at UW-P.
- Worked with a team of faculty to successfully create the curriculum, objectives, and outcomes for the new major in MSNT at UW-P.
- Administered the MSNT Minor, in addition to my duties as the General Engineering department chair.
- Recruited students into the minor.
- Worked with a team of faculty to design the layout and acquire equipment for the new “Clean Room” used by the new major.
- Advised six students on their MEMS research projects.

### Teaching Experience:

- **Tenured Professor of Mechanical and Civil Engineering**, Department of Engineering (Mechanical and Civil Engineering Programs), University of Mount Union, 2013-present.
- **Tenured Professor**, Department of General Engineering, University of Wisconsin-Platteville, 1999-2013.
- **Associate Professor**, Department of General Engineering, University of Wisconsin-Platteville, 1994-1999. Earned tenure in 1995.
- **Assistant Professor**, Department of General Engineering, University of Wisconsin-Platteville, 1990-1994.
- **Graduate Lecturer and Research Assistant**, Department of Engineering Science and Mechanics, Pennsylvania State University, January 1985 – June 1990. Taught Statics, Dynamics, Strength of Materials and Experimental Mechanics.

### **I developed and taught the following courses:**

- Structural Mechanics – ECE 340 at UMU and CE 3100 at UW-P
- Engineering Materials – EME 230 at UMU and ME 3010 at UW-P
- Construction Materials – ECE 230 at UMU
- Finite Element Analysis – ME 4000 at UW-P
- Mechanical Failure – ME 4440 at UW-P
- Experimental Mechanics – EMCH 316 at Penn State
- Mechanics of Materials – EGE 240 at UMU GE 2340 at UW-P
- Dynamics – EGE 210 at UMU and GE 2230 at UW-P
- Statics – EGE 210 at UMU and GE 2130 at UW-P
- Design and Simulation of MicroElectroMechanical Systems (MEMS) – EP 4000 at UW-P
- Computer Programming (Fortran) – GE 1430 at UW-P
- Introduction to Engineering Projects – GE 1030 at UW-P
- Engineering Success Skills – GE 1000 at UW-P

### **Industrial Teaching and Workshops:**

- John Deere, Dubuque, Iowa - Fatigue and Fracture of Engineering Materials - 1998 and 1999.
- NASA Glenn Research Center, Cleveland, Ohio – Fatigue of Materials - 2005.
- Fraunhofer-Institut Fur Werkstoffmechanik IWM, Halle, Germany – Probabilistic Design for MEMS Devices. Also conducted a workshop on using NASA’s CARES/Life integrated design software for brittle materials.

### Industrial and Consulting Experience:

- Member of the **Board of Directors for INCUBOX**, the city of Alliance business incubator that exists to bring together innovators and entrepreneurs to launch their ideas, and accelerate their companies into successful business operations, 2015-present.
- **FMC Technologies, Inc.**, Houston, Texas, 2010-2013. Working as a consultant with a team of mechanical engineers on using the brittle material integrated design technology I helped develop at NASA to probabilistically design components into their proprietary energy exploration products.
- **Faculty Research Fellow - NASA Glenn Research Center**, summers of 1992 to 1997, and 1999-2004. Along with a team of researchers, I developed a simulation based methodology to predict the creep rupture life of advanced brittle structural components subjected to high temperature multiaxial loading. As part of that effort, I wrote the initial version of the NASA CARES/Creep software. This program is an integrated postprocessor design code used with Finite Element Analysis (FEA) to predict the creep rupture life of thermomechanically-loaded components. I also worked with a team of NASA engineers to enhance the integrated probabilistic design code, CARES/Life. This code is used with FEA to predict the probability of failure for brittle structural components subjected to thermomechanical transient load histories. Current research involves the development of a probabilistic code dedicated to predicting the probabilistic failure behavior in **MEMS** devices. This code is used worldwide by major corporations such as Samsung, Caterpillar, and General Electric, to name a few.
- **John Deere, Inc. (Sabbatical Leave)**, Dubuque, Iowa, 1998 – 1999. Worked with a select research and product development group on developing a robust methodology for multiaxial fatigue life prediction of earth moving vehicles by digital prototyping. I successfully developed a digitally instrumented method for determining the transient load histories necessary for digital fatigue prototyping using the structure as its own multiaxial force transducer. This methodology is currently used by John Deere for product development and is considered a proprietary technology.
- **Faculty Research Fellow - U.S. Department of Energy, Oak Ridge National Laboratory**, summers of 1991 and 2005-08. Investigated, experimentally and analytically, the feasibility of utilizing the Acoustic Emission nondestructive evaluation technique to evaluate fatigue damage in monolithic and composite materials. Other research projects included reliability of thermoelectric devices, thermal management of electronic components, analysis and durability evaluation of armor ceramics, and fracture toughness of brittle materials using Hertzian indentation.

- **Research Assistant - Center for Advanced Materials**, January 1987 - August 1990. Studied analytical and test methodologies to predict the fast fracture and time dependent reliability of tubular components.
- **Lab Assistant - Pennsylvania Transportation Institute**, October 1982-February 1983.

## RESEARCH

### **Research Interests and Expertise:**

- Probabilistic Design of All-Ceramic Dental Prostheses.
- Undergraduate research in engineering.
- Design of structures in a total probabilistic design environment.
- Mechanical reliability of MicroElectromechanical (MEMS) devices.
- Multiaxial fatigue life prediction via digital prototyping.
- Determination of dynamic load histories, applied to mechanical systems, using Remote Parameter Analysis.
- Time-dependent reliability of ceramic structures subjected to transient loading.
- Development of new test and analytical methodologies to predict the fast fracture and time dependent (creep and slow crack growth) reliability of ceramic tubular components at room and high temperatures (Ph.D. thesis).
- Life prediction of metallic structural components subjected to multiaxial fatigue loading using energy based methods.
- Prediction of cyclic fatigue damage in monolithic and composite ceramic materials using the Acoustic Emission technique.
- Use of Fractography (crack branching data) to measure near-surface residual stresses in Soda Lime glass.
- Analysis of non-homogeneous slabs with free edges and point supports using the finite element and finite difference methods (Master's thesis).
- Investigation of failure behavior in metal matrix composite materials subjected to high velocity impact.
- Development of a Nanotechnology module for the Engineering Economics course.

### **FUNDED RESEARCH:**

- Osama Jadaan, Hydrostatic Stress Simulation Using Diamond Anvil Specimen Geometries, July 2017, \$10,000.
- Osama Jadaan, Diesel Particulate Filters, Oak Ridge National Lab, 2015-16, \$5000.
- Osama Jadaan, proprietary product development research, FMC Technologies, 2010-2013, \$60,000.
- David Kunz (PI), Osama Jadaan(Co-PI), and Tammy Salmon-Stephens (Co-PI), "Collaborative research: CMN PEEC Project: Providing for the Education of American Indian Engineers," NSF, 2011-2015, \$823,900.
- Osama Jadaan, "Translational Clinical Analysis of Implant-Borne Ceramic Bridge Survival," National Institutes of Health and University of Florida, 2010-2015, \$118,843.

- Jim Hamilton, Hal Evensen, and Osama Jadaan, "NUE:USE-NanoMEMS: Undergraduate Science and Engineering Workforce Education in Nanotechnology and Microsystems," NSF, 2011-2013, \$199,687.
- Osama Jadaan, "Assessing the Viability of Using Ceramics for Nuclear Fuel Cladding Systems," U.S. Department of Energy-Oak Ridge National Lab, 2011, \$5000.
- Osama Jadaan, "Effective Outreach, Recruiting, Diversifying, and Retaining Engineering Students through Explore Engineering Summer program at UW-Platteville," Opportunity Fund, UW-Platteville, 2011, \$7,500.
- O. Jadaan, "Reliability Evaluation and Design of Ceramic Turbines," 2008-09. Innovative Energy Inc., Missouri, \$20,000.
- O. Jadaan, "Thermal Management and reliability of electronic and thermoelectric Devices," 2005-09. Department of Energy, \$30,000.
- O. Jadaan, "High Temperature Advanced Materials for Lightweight Valve Train Components," 2004-06. Caterpillar Inc., \$77,000.
- K. Anusavic, O. Jadaan, et al., "Ceramic Prosthesis Survival Based on CARES/Life Analysis," 2006-2010. National Institute of Health (NIH), \$20,000.
- O. Jadaan, "Establishing an Undergraduate MEMS Education Program at UW-Platteville as Part of the Tri-State Initiative," 2005-06. UW-Platteville Scholarly Activity Improvement Fund, \$4000.
- O. Jadaan, "Development of an ANSYS Macro for Spontaneous Evaluation of Effective Volumes and Effective Areas of Ceramic Components under Fluctuating Load Histories," 2004-05. U.S. Army Research Lab, \$10,000.
- O. Jadaan and J. Palko, "Controlled-Release Microsystems for Pharmacological Agent Delivery," 2002-04. NASA Glenn Biomedical Engineering Consortium, \$20,000.
- O. Jadaan, "Ceramic Gun Barrel Technology," 2003-05. U.S. Army Research Laboratory, \$25,000.
- O. Jadaan, "Design and Reliability of Microsized Structures," 2003-05. NASA Glenn Research Center, \$15000.
- O. Jadaan, "Development of CARES/MEMS Mechanical Reliability Code," 2002-03. NASA Glenn Research Center, \$12,000.
- O. Jadaan, "FEA Modeling and Probabilistic Characterization of MEMS Pressure Sensors," 2000-01. NASA Glenn Research Center, \$10,000.
- O. Jadaan, "Slow Crack Growth and Fatigue Life Prediction of Ceramic Components Subjected to Transient Load History," 1999-2001. NASA Glenn Research Center, \$10,000.
- O. Jadaan, "Predicting the Mechanical Reliability of MicroElectroMechanical Systems (MEMS) Pressure Sensor Devices," 2001-02. UWP-SAIF grant, \$4,000.
- O. Jadaan, "Fatigue Life Evaluation by Digital Prototyping," 1998-99. John Deere & Company, \$33,000.
- O. Jadaan, "Determination of Transient Load Histories Using the Structure As Its Own Multiaxial Force Transducer," 1999. John Deere & Company, \$5,000.
- O. Jadaan, "Thermal Stress and Failure Analysis of Enamel Coated Steel Components," 1998. Ferro Corporation, \$7,000.
- A. Masoom, F. Masoom, O. Jadaan, "Effective Assessment of 'Introduction to Engineering' the First Course in Engineering ," 1998-99. University of Wisconsin-Platteville, \$1,500.



- O. Jadaan, "Deterministic and Probabilistic Enhancements to the Ceramic Analysis and Reliability Evaluation of Structures CARES/Creep Integrated Design Code," 1997-98. NASA Glenn Research Center, \$10,000.
- O. Jadaan, "Development of an Integrated Design Code to Predict the Creep Life of structural Components Based on theory of Continuum Damage Mechanics," 1997-98. University of Wisconsin Scholarly Activity Improvement Fund, \$4,000.
- O. Jadaan, "Deterministic and Probabilistic Enhancements to the Ceramic Analysis and Reliability Evaluation of Structures CARES/Creep Integrated Design Code," 1996-97. NASA Glenn Research Center, \$10,000.
- O. Jadaan, "Damage Based Creep Life Prediction of Ceramic Structural Components Using a Finite Element Method Postprocessor Code," 1995-96. UWP-SAIF grant, \$3,000.
- O. Jadaan, "Short course-Mechanical Failure Theories," 1995. John Deere & Company, \$7,000.
- O. Jadaan, R. Kumar, and F. Eshelman, "Mechanical Material Characterization and Analysis of Recycled Glass Slabs," 1993. Solid Waste Management Program at UW-Madison, \$33,460.
- O. Jadaan, "Failure Models for Ceramic Matrix Composites Subjected to Monotonic Loading," 1993-94. UWP-SAIF grant, \$3,000.
- R. Kumar, O. Jadaan, and A. Masoom, "An Integrated Solid Mechanics Laboratory for the Departments of Mechanical and General Engineering at UW-Platteville," 1992. UW system.
- O. Jadaan, "Energy Based methods to Predict the Lifetime of Metallic Structural Components Subjected to Multiaxial Fatigue Loading," 1992-93. UWP-SAIF grant, \$3,000.
- O. Jadaan, "lifetime Prediction of Thermomechanically Loaded Ceramic Tubes," 1991-92. UWP-SAIF grant, \$3,000.

### **HONORS and AWARDS**

- Selected and trained by ABET as accreditation Program Evaluator in 2016.
- Lead the creation of Self Study Reports, for both CE and ME programs, that were selected by ABET for display in the 2015 ABET annual symposium as well-prepared reports.
- Received the 2009 UW-Platteville **Tau Beta Pi Excellence in Teaching Award** which recognizes "outstanding effort in the art and profession of teaching, enthusiasm, and interaction with students at the university."
- Won the 2<sup>nd</sup> best paper award titled "Probabilistic Design Optimization and Reliability Assessment of High Temperature Thermoelectric Devices," presented at the 32<sup>nd</sup> International Conference on Advanced Ceramics and Composites, Florida, January 2008.
- **Won the NASA Glenn Research Center RXL 2006 Mechanics and Life Prediction Branch Best Paper award** for the article titled "Lifetime Reliability Prediction of Ceramic Structures under Transient Thermomechanical Loads," by Noel Nemeth, Osama Jadaan, and John Gyekenyesi.
- Won first place award for poster titled "C-sphere flexure strength of three bearing-grade silicon nitrides," presented at the 31st International Conference & Exposition on Advanced Ceramics and Composites, Daytona Beach, Florida, 2007.

- **NASA Technical Brief Innovator award** for scientific and technical merits of the technology titled "Silicon Carbide MEMS Structures: Accounting For Uncertainties In Strength", and its significant contribution to NASA's aeronautical and space activities. NASA Case No. LEW-18095-1 (2006).
- **NASA Invention and Contribution Technology Transfer award** for software release - Technology NASA case No. LEW-17684-1 titled "Reliability Evaluation of Structures Life Prediction Code – Version 6.0." This award consisted of monetary award and a certificate of recognition (April 2005).
- 2004 Pi Tau Sigma Mechanical Engineering Honorary Society **Outstanding Professor of the Year** award.
- NASA Space Act award for new technology development of the design-integrated code CARES/Creep.
- Faculty Research Fellow, National Aeronautics and Space Administration-NASA Glenn Research Center (summers of 1992 to 97, and 1999-2004).
- Faculty Research Fellow, U.S. Department of Energy-Oak Ridge National Laboratory (summer 1991, summers 2005-2007).
- Honored by Wisconsin Governor Scott McCallum as part of *Reception to Honor Wisconsin Researchers*.
- Best technical paper award, American Society of Mechanical Engineers, International Gas Turbine Institute TURBO EXPO' 97 Conference held in Orlando, Florida, June 1997.
- Letter of recognition from Mr. Donald Cambell, director of NASA Glenn Research Center, "for exceptional performance and accomplishment."
- University of Wisconsin-Platteville Award for Excellence in Scholarly Research (2001).
- UWP Tau Beta Pi Excellence in Teaching Award (2001).
- Exemplary Faculty Teaching Award, College of Engineering, Mathematics and Science, UW-P (1995).
- Exemplary Faculty Award for Research and Professional Development, College of Engineering, UW-P (1992).
- Board of Regents award for teaching excellence, UW-P (1991).
- Tau Beta Pi Engineering Honor Society member.
- Phi Kappa Phi Honor Society member.
- Phi Eta Sigma National Honor Society member.
- Certificates of recognition by NASA Lewis Research Center (1994-2004).
- Certificates of Appreciation - American Society of Mechanical Engineers (1993 and 1995).
- Listed in Who is Who Among Students in American Universities and Colleges.

## PROFESSIONAL ACTIVITIES

- Selected by ABET as accreditation Program Evaluator in 2015.
- Lead the creation of Self Study Reports at the University of Mount Union, for both CE and ME programs, that were selected by ABET for display in the 2015 ABET annual symposium as well-prepared reports.

- Director and founder of UW-Platteville's Explore Engineering Summer program for 11<sup>th</sup> and 12<sup>th</sup> grade high school students.
- Invited professor to Germany's Fraunhofer Institut Werkstoffmechanik, where I taught a short course on "Probabilistic Design and Reliability Evaluation of MEMS," as well as conducted workshops on using the NASA integrated design code CARES/Life to design and predict the reliability of MEMS devices, 2006.
- Invited professor to NASA Glenn Research Center and the Ohio Aerospace Institute to teach a course on "Fatigue Life Prediction of Structures," 2004.
- Consultant and research collaborator with the Ceramic Science and Technology Group at Oak Ridge National Lab.
- Consulted for many companies such as Caterpillar, John Deere, FMCTechnologies Inc., Ferro Corporation, and Connecticut Reserve Technologies.
- Co-author and Editor of three books.
- Member of steering committee organizing the 2008 American Society of Engineering Education (ASEE) North Midwest Section Conference to be held in October 2008.
- Chair of ASME 11th Biennial Conference on Reliability, Stress Analysis, and Failure Prevention (RSAFP) held in Boston, MA, 1995.
- Member of the ASME steering committee on Reliability, Stress Analysis, and Failure Prevention.
- Member of the ASME Design Engineering Division 50th Anniversary Committee.
- Vice-Chaired the ASME 10th Biennial Conference on Reliability, Stress Analysis, and Failure Prevention held in Albuquerque, NM, 1993.
- Developed a "FAILURE THEORIES" manual and used it to train engineers at NASA and John Deere Construction Equipment Division.
- Taught Mechanics of Materials, Statics, and Introduction to Engineering courses using distance education compressed audio-video technology.
- Member of ASTM subcommittee C28.01 on Properties and Performance charged with developing "Standard Test Methods for Flexural Strength of Advanced Ceramics with Diametrically Compressed C-ring Specimens at Ambient Temperatures."
- Faculty advisor to Tau Beta Pi engineering honor society at UW-Platteville.
- Faculty advisor to the Association of Multicultural Engineers at UW-Platteville.
- Reviewed books, and refereed many papers for professional journals and proceedings.

## SOFTWARE UTILIZATION

MEMS fabrication layout and 3-D visualization SUMMiT V software, ANSYS FEA, ANSYS-Workbench FEA, Algor FEA, NASTRAN FEA, I-DEAS Simulation and FEA modeling, Working Model, nSoft Fatigue, Fatigue Wizard, CARES/Life, CARES/Creep, RISA-2D, MATHCAD, MINITAB, Statgraphics, MATLAB, Word, EXCEL, Power Point, and others.

## PUBLICATIONS

- Andrew A. Wereszczak, Osama M. Jadaan, Glenn Hatala, Max C. Modugno, and Michael J. Lance, "Adaptation of the Chevron-Notch Beam Fracture Toughness Method to Specimens Harvested from Diesel Particulate Filters," *International Journal of Applied Ceramic Technology*, January 2017.
- Andrew A. Wereszczak, Brandon Chen, Osama M. Jadaan, Max Modugno, Jeffrey Sharp, and James Salvador, "Cantilever Testing of Sintered-Silver Interconnects," submitted to *Journal of Material Science: Materials in Electronics*, 2017.
- Andrew A. Wereszczak, Brandon Chen, and Osama M. Jadaan, "Double-Sided Pressureless-Sintered-Silver-Interconnects via Reflow Oven Processing", to be submitted to *Journal of Material Science: Materials in Electronics*, 2017.
- Kenneth Anusavice, Osama Jadaan, and Josephine Esquivel-Upshaw, "Time-dependent fracture probability of bilayer, lithium-disilicate-based, glass-ceramic, molar crowns as a function of core/veneer thickness ratio and load orientation," *Dental materials*, Vol. 29, issue 11, pp. 1132-1138, 2013.
- Kenneth Anusavice, Josephine Esquivel-Upshaw, J. Lee, and Osama Jadaan, "Fast-fracture probability of implant-supported, three-unit, veneered zirconia, fixed dental prostheses," *Dental Materials*, Vol. 29, p. e2, 2013.
- Michael Vick, Osama Jadaan, Andrew Wereszczak, Sung Choi, Andrew Heyes, and Keith Pullen, "Engine Design Strategies to Maximize Ceramic Turbine Life and Reliability," *Proceedings of ASME Turbo Expo 2011, GT2011-46784*, June 6-10, 2011, Vancouver , Canada.
- Michael Vick, Osama Jadaan, Andrew Wereszczak, Sung Choi, Andrew Heyes, and Keith Pullen, "Engine Design Strategies to Maximize Ceramic Turbine Life and Reliability," *Journal of Engineering for Gas Turbines and Power*, Volume 134, Issue 8, August 2012.
- Mitchel Cornelius, Bidhan Roy, and Osama Jadaan, "A Nanotechnology module within the current course in Engineering Economy," 2011 ASEE North Midwest Section Conference, University of Minnesota-Duluth, October 2011.
- Harold Evensen, Osama Jadaan, et al., "A New undergraduate major in Microsystems and Nanotechnology," 2011 ASEE North Midwest Section Conference, University of Minnesota-Duluth, October 2011.
- Osama Jadaan, Andrew Wereszczak, and Kurt Johanns, "Weibull Effective Area for Hertzian Ring Crack Initiation," *International Journal of Applied Ceramic Technology*, April 2010.
- A. A. Wereszczak, T. P. Kirkland, K. T. Strong, Jr., O. M. Jadaan, and G. A. Thompson, "Size Scaling of Tensile Failure Stress in Boron Carbide," (Invited paper), *Advances in Applied Ceramics*, vol. 109, no. 8, pp. 487 - 492 , 2010.
- A. A. Wereszczak, W. L. Daloz, K. T. Strong, Jr., and O. M. Jadaan, "Effect of Indenter Elastic Modulus on Hertzian Ring Crack Initiation in Silicon Carbide," *International Journal of Applied Ceramic Technology*, April 2010.

- A. A. Wereszczak, O. M. Jadaan, T. P. Kirkland, “Edge-Controlled Mechanical Failure of Si and SiC Semiconductor Chips,” International Microelectronics and Packaging Society (IMAPS) - High Temperature Electronics Conference (HiTEC 2010), Albuquerque, NM, May 11-13, 2010.
- K. J. Anusavice, O. M. Jadaan, A.A. Barrett, and R.B. Lee, “Time-Dependent Ceramic Crown Fracture for Variable Load Orientation and Core/Veneer Thickness Ratios,” International Association for Dental Research, Barcelona, Spain, July 14-17, 2010.
- A. Wereszczak, K. Johanns, and O. Jadaan, “Hertzian Ring Crack Initiation in Hot-Pressed Silicon Carbides,” Journal of the American Ceramic Society, vol. 92, issue 8, 1788-1795, 2009.
- Osama Jadaan, and Andrew Wereszczak, “Revisiting the Recommended Geometry for the Diametrically Compressed Ceramic C-ring Specimen,” Department of Energy ORNL-TM-2009/090, March 2009.
- Osama Jadaan, and Andrew Wereszczak, “Effective Size Analysis of the Diametral Compression (Brazil) Test Specimen,” Department of Energy ORNL-TM-2009/100, May 2009.
- Osama Jadaan, and Andrew Wereszczak, “Probabilistic Mechanical Reliability Prediction of Thermomechanical Legs,” Department of Energy ORNL-TM-2009/133.
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- Andrew Wereszczak, Timothy Kirkland, Osama Jadaan, and Hsin Wang, “Strength of Bismuth Telluride,” Proceedings of Ceramic Science and Engineering, January 2009, Volume 30, Daytona Beach, Florida.
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