

## **KATHLEEN A. ISSEN, Ph.D., P.E.**

Associate Professor  
Mechanical & Aeronautical Engineering  
Clarkson University  
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### **EDUCATION**

Ph.D., Theoretical & Applied Mechanics, Northwestern University	2000
M.S., Theoretical & Applied Mechanics, Northwestern University	1997
B.S., General Engineering, University of Illinois	1983

### **LICENSURE**

Registered Professional Engineer in Illinois (License No. 062-044422)	1988 – Present
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### **PROFESSIONAL EXPERIENCE**

Clarkson University Associate Professor	2006 – Present
Assistant Professor	2000 – 2006
Northwestern University, Faculty Intern	1999 – 2000
Northwestern University, Research Assistant and Teaching Assistant	1997 – 1999
Abbott Laboratories, Section Manger	1987 – 1997
Baxter Health Care Corp., Energy Manager/Plant Operations Engineer	1986 – 1987
Impell Corporation, Engineering Analyst	1985 – 1986
Sargent & Lundy Engineers, Engineering Analyst	1983 – 1985
International Business Machines, Manufacturing Engineering Intern	1982

### **RESEARCH INTERESTS**

Solid mechanics and materials, specifically: 1) constitutive modeling of natural and manufactured heterogeneous and/or anisotropic materials, and 2) investigation of bifurcation phenomena and instability problems. Materials currently under investigation include submicron fiber reinforced composites and high porosity materials: sandstone, metal foam, honeycombs and trabecular bone. Porous materials work employs theoretical, experimental and computational approaches to develop a fundamental understanding of the deformation behaviors of each material individually, and of porous materials in general. Current work includes characterization and modeling of the onset, interaction and propagation of localized and diffuse instabilities. Research goals are to: 1) establish connections between material micro/mesostructure and macrostructural behavior, and express these connections in constitutive models; and 2) develop theoretical frameworks to model the instability behaviors observed in porous materials with

diverse micro/mesostructures. Recent composites work focuses on hierarchical modeling, using nanoscale and microscale models to predict macroscale bulk material properties.

## **SPONSORED RESEARCH**

NSF REU Supplement CMS- 0531323, “Characterization and Modeling of Strain Localization in Metal Foams,” PI: K.A. Issen, \$5,000, 2005-2006, Engineering Division (supports one undergraduate student).

NSF REU Site Award EEC-0453404 (Co-sponsored by AFOSR), “Nanoscale Science and Engineering for Materials Systems and Materials Processing,” PI: J. Moosbrugger, Co-PI: K. Issen, \$249,696, 2005-2007 (supports nine undergraduate students each summer for three years).

NYSERDA Award, “Feasibility of Energy Efficient Manufacture of Continuous Sub-micron Carbon Fibers,” \$50,000, PI: J. Moosbrugger, Co-PI’s: D. Morrison, I. Sokolov, K.A. Issen, 2004-2005.

NSF REU Supplement CMS-0429835, “Characterization and Modeling of Strain Localization in Metal Foams,” PI: K.A. Issen, \$5,000, 2004-2005, Engineering Division (supports one undergraduate student).

NSF SGER Award CMS-0422045, “Characterization and Modeling of Strain Localization in Metal Foams,” PI: K.A. Issen, \$60,000, 2004-2006, Engineering Division (supports one graduate student).

NSF Award EAR-0310085, “Further Investigation of the Onset and Evolution of Compaction and Dilation Bands,” PI: K.A. Issen, \$60,000, 2003-2005, Earth Sciences Division (supports one graduate and two undergraduate students).

NSF Award CMS-0216286, “Acquisition of an Axial Servo Hydraulic Test System (Universal Testing System) for Research and Teaching in Civil and Mechanical Engineering at Clarkson University,” PI: M.M. Lopez, Co-PI’s: K.A. Issen, D.J. Morrison, J.P. Dempsey, L. Minnetyan, \$206,794, 2002-2005.

NSF Award EAR-0006932, “Experimental and Theoretical Investigation of Compaction and Dilation Bands,” PI: K.A. Issen, \$120,000, 2001-2003, Earth Sciences Division (supported one graduate and two undergraduate students).

GE Faculty of the Future Award, PI: K.A. Issen, \$15,000, 2000-present.

## **PENDING PROPOSALS**

NSF Proposal DMI-0600501, “Effects of Enhanced Convection on the Weldability of Dissimilar Metals,” PI: D.K. Aidun, Co-PI: K.A. Issen, \$298,979, 2006-2009, submitted October 2005.

## **JOURNAL PUBLICATIONS**

(\* Graduate advisee, \*\* Undergraduate advisee)

Challa, V.\* and K.A. Issen, “Third Invariant Dependent Single Yield Surface Model and Localization Conditions for High Porosity Sandstone,” *International Journal of Numerical and Analytical Methods in Geomechanics*, submitted 2006.

Issen, K.A. and V. Challa\*, “Influence of the Intermediate Principal Stress on the Strain Localization Mode in Porous Rock,” *Journal of Geophysical Research*, in review 2006.

Issen, K.A., J.P. Ingraham\* and A.J. Howard\*\*, “Experimental and Theoretical Examination of Localized Compaction with Shear in Aluminum Foam,” *International Journal of Plasticity*, in revision, 2006.

Challa, V.\* and K.A. Issen, “Modeling Material Behavior of High Porosity Sandstone With a Two-Yield Surface Constitutive Model,” *Journal of Engineering Mechanics*, in revision 2006.

Werther, D.J.\*\*\*, A.J. Howard\*\*, J.P. Ingraham\* and K.A. Issen, “Characterization and Modeling of Strain Localization in Aluminum Foam Using Multiple Face Analysis,” *Scripta Materialia*, Vol. 54, pp. 783-787, 2006.

Issen, K.A., T.P. Casey\*, D.M. Dixon\*\*, M.C. Richards\*\* and J.P. Ingraham\*, “Characterization and Modeling of Localized Compaction in Aluminum Foam,” *Scripta Materialia*, Vol. 52, pp. 911-915, 2005.

Challa, V.\* and K.A. Issen, “Conditions for Localized Compaction of Porous Granular Materials,” *Journal of Engineering Mechanics*, Vol. 130, No. 9, pp. 1089-1097, 2004.

Issen, K.A., “The Influence of Constitutive Models on Localization Conditions for Porous Rock,” *Engineering Fracture Mechanics*, Vol. 69, pp. 1891-1906, 2002.

Issen, K.A. and J.W. Rudnicki, “Theory of Compaction Bands in Porous Rock,” *Physics and Chemistry of Earth, Part A*, Vol. 26, pp. 95-100, 2001.

Issen, K.A. and J.W. Rudnicki, “Conditions for Compaction Bands in Porous Rock,” *Journal of Geophysical Research*, Vol. 105, No. B9, pp. 21529-21536, 2000.

Bekker, A., L.C. Brinson, K. Issen, “Localized and Diffuse Thermoinduced Phase Transformation in 1D Shape Memory Alloys,” *Journal of Intelligent Material Systems and Structures*, Vol. 9, No. 5, pp. 355-365, 1998.

## **BOOK CHAPTERS** (Invited, Peer Reviewed)

Issen, K.A., and V. Challa\*, “Strain Localization Conditions in Porous Rock under Axisymmetric Loading,” in *SP245 High-Strain Zones: Structure and Physical Properties*, D. Bruhn and L. Burlini, Eds., Geological Society of London Special Publications, ISBN 1-86239-178-5, 2005.

## **CONFERENCE PAPERS AND THESES**

(\* Graduate advisee, \*\* Undergraduate advisee)

Issen, K.A. and J.P. Ingraham\*, “Inhomogeneous Compaction Deformation Modes in Aluminum Foam.” 11<sup>th</sup> International Plasticity Symposium, 2005.

Issen, K.A. and V. Challa\*, “Constitutive Models and Strain Localization Conditions for Porous Sandstone,” 11<sup>th</sup> International Conference on Fracture, 2005.

Challa, V.\* and K.A. Issen, “Localized Deformation in Bentheim Sandstone: Theoretical Predictions and Experimental Observations,” 17<sup>th</sup> ASCE Engineering Mechanics Conference Proceedings, 2004.

Issen, K.A., J. Richardson and P. S. Steif, "Probing Conceptual Knowledge of Students in Strength of Materials," 17<sup>th</sup> ASCE Engineering Mechanics Conference Proceedings, 2004.

Issen, K.A. and V. Challa\*, "Theoretical Modeling of Localized Deformation Structures in Porous Sandstone," American Association of Petroleum Geologists Annual Meeting Proceedings, 2004.

Issen, K.A. and V. Challa\*, "Conditions for Dilation Band Formation in Granular Materials," 16<sup>th</sup> ASCE Engineering Mechanics Conference Proceedings, 2003.

Vajdova, V., T.-f. Wong, D. E. Farrell\*\*, V. Challa\* and K.A. Issen, "Experimental Observation and Numerical Simulation of Initiation and Propagation of Compaction Bands in a Sandstone," 16<sup>th</sup> ASCE Engineering Mechanics Conference Proceedings, 2003.

Challa, V\*. and K.A. Issen, "Conditions for Localized Compaction of Porous Granular Materials," 15<sup>th</sup> ASCE Engineering Mechanics Conference Proceedings, 2002.

Issen, K.A., B. Kinsey, L.C. Brinson, L.J. Broadbelt, "Preparing Future Faculty: A Professional Development Series," Proceedings of the 2001 American Society for Engineering Education Annual Conference, 2001.

Issen, K.A., "Conditions for Localized Deformation in Compacting Porous Rock," Ph.D. Thesis, Northwestern University, Evanston, IL 2000 (John W. Rudnicki, Research Advisor).

Issen, K.A., "Prediction of Elastic Properties of Satin Weave Fabric Composites," M.S. Thesis, Northwestern University, Evanston, IL, 1997 (Isaac M. Daniel, Research Advisor).

## **INVITED PRESENTATIONS**

15<sup>th</sup> USNCTAM, June 2006, Boulder, CO, "Characterization and Modeling of Inhomogeneous Compaction Deformation in Aluminum Foams."

11<sup>th</sup> International Plasticity Symposium, January 2005, Kauai, HI, "Inhomogeneous Compaction Deformation Modes in Aluminum Foam."

University of Vermont, September 2004, Burlington VT, "Compaction Localization in Metal Foams."

AAPG (American Association of Petroleum Geologists) Annual Meeting, April 2004, Dallas TX, "Theoretical Modeling of Localized Deformation Structures in Porous Sandstone."

Clarkson University, CEE Seminar Series, November 2003, "Conditions for Localized Deformation in Porous Sandstone Using a Two Yield Surface Constitutive Model."

ASME Mechanics & Materials Conference, June 2003, Scottsdale, AZ, "Conditions for Localized Deformation in Porous Sandstone Using a Two-Yield Surface Constitutive Model."

University of Vermont, September 2001, Burlington VT, "Compaction Band Formation in High Porosity Materials."

## **CONFERENCE PRESENTATIONS**

(Presented by K.A. Issen unless otherwise noted; \* Graduate advisee, \*\* Undergraduate advisee)

41<sup>st</sup> U.S. Rock Mechanics Symposium: Golden Rocks 2006, June 2006, Golden, CO, "Influence of the Intermediate Principal Stress on Compaction Localization Conditions."

15<sup>th</sup> USNCTAM, June 2006, Boulder, CO, “Third Invariant Dependent Single Yield Surface Model and Localization Conditions for High Porosity Sandstone” (V. Challa\*).

7<sup>th</sup> IWBIDG (International Workshop on Bifurcation, Instabilities and Degradation in Geomechanics), June 2005, Chania, Crete, Greece, “Constitutive Relations and Localization Conditions for High Porosity Sandstone”

McMat ASME/SES/ASCE Mechanics & Materials Conference, June 2005, University of Louisiana, “Influence of Third Invariant on Two Yield Surface Constitutive Model”

McMat ASME/SES/ASCE Mechanics & Materials Conference, June 2005, University of Louisiana, “Characterization and Modeling of Inhomogeneous Deformation in Aluminum Foam”

SES Annual Conference, October 2004, University of Nebraska, “Compaction Localization in Aluminum Foam.”

SES Annual Conference, October 2004, University of Nebraska, “Microstructural Deformation and Macroscopic Behavior in Closed Cell Aluminum Foam” (J.P. Ingraham\*).

17<sup>th</sup> ASCE Engineering Mechanics Conference, June 2004, University of Delaware, “Localized Deformation in Bentheim Sandstone: Theoretical Predictions and Experimental Observations” (V. Challa\*).

17<sup>th</sup> ASCE Engineering Mechanics Conference, June 2004, University of Delaware, “Probing Conceptual Knowledge of Students in Strength of Materials.”

NSBE National Conference, March 2004, “Theoretical Conditions for Compaction Band Formation in Metal Foams” (D.M. Dixon\*\*).

AGU Fall Meeting, December 2003, San Francisco, CA, “Conditions for Localized Deformation in Porous Granular Material Under Axisymmetric Loading Using a Two-yield Surface Model” (V. Challa\*).

AGU Fall Meeting, December 2003, San Francisco, CA, “Effect of Confining Pressure on Compaction Localization in Notched Samples of Bentheim Sandstone: Experimental Observations and Finite Element Modeling” (V. Vajdova).

NSBE Regional Conference, November 2003, “Theoretical Conditions for Compaction Band Formation in Metal Foams” (D.M. Dixon\*\*).

16<sup>th</sup> ASCE Engineering Mechanics Conference, July 2003, Seattle, WA, “Conditions for Dilation Band Formation in Granular Materials.”

16<sup>th</sup> ASCE Engineering Mechanics Conference, July 2003, Seattle, WA, “Experimental Observation and Numerical Simulation of Initiation and Propagation of Compaction Bands in a Sandstone.”

ASME Mechanics & Materials Conference, June 2003, Scottsdale, AZ, “Compaction Band Formation in Porous Materials.”

SES Annual Conference, October 2002, Pennsylvania State University, “Conditions for Localized Compaction in High Porosity Sandstone” (V. Challa\*).

SES Annual Conference, October 2002, Pennsylvania State University, “Experimental Analysis of Compaction Band Formation in Aluminum Foam Using Surface Strain Mapping” (T.P. Casey\*).

SES Annual Conference, October 2002, Pennsylvania State University, “Strain Rate Sensitivity of Cymat Aluminum Foam Subject to Uniaxial Compression Loading,” (M.M. Braun\*\*).

14<sup>th</sup> USNCTAM, June 2002, Blacksburg, VA, “Localization Conditions for High Porosity Rock Using a Two-Yield Surface Constitutive Model.”

15<sup>th</sup> ASCE Engineering Mechanics Conference, June 2002, New York, NY, “Conditions for Localized Compaction of Porous Granular Materials,” (V. Challa\*).

AGU Fall Meeting, December 2001, San Francisco, CA, “Two-yield Surface Model for Compaction Band Formations in High Porosity Rock.”

ASME/SES/ASCE Mechanics & Materials Conference, June 2001, San Diego, CA, “Two-Yield Surface Model for Compacting Porous Rock.”

ASEE Annual Conference, June 2001, Albuquerque, NM, “Preparing Future Faculty: A Professional Development Series.”

AGU Fall Meeting, December 1999, San Francisco, CA, “Conditions for Compaction Bands in Porous Rock.”

SES Annual Conference, October 1999, Austin, TX, “Conditions for Localized Deformation in Compacting Porous Rock.”

ASME Mechanics & Materials Conference, June 1999, Blacksburg, VA, “Instabilities in Compacting Geomaterials.”

Marcam International User Conference, June 1996, Orlando FL, “Customize Your Software or Change Your Business Practices?”

Marcam International User Conference, May 1995, Orlando FL, “Look Before You Leap: The Pros and Cons of Software Customization.”

ShawWare User Conference, October 1991, Toronto, Canada, “Facilities Management with ShawWare.”

## **HONORS AND AWARDS**

Teaching Excellence, Clarkson University School of Engineering, Fall 2005.

Outstanding Advisor Award, Clarkson University, 2005.

Teaching Excellence, Clarkson University School of Engineering, Spring 2005.

NSF Summer Institute on Nano Mechanics and Materials, Tuition Scholarship, 2004.

Teaching Excellence, Clarkson University School of Engineering, Fall/Spring 2004.

Outstanding New Teacher Award, Clarkson University, 2003.

Teaching Excellence, Clarkson University School of Engineering, Spring 2003.

NSF CMS Workshop for the Advancement and Retention of Underrepresented and Minority Engineering Educators, 2003.

Teaching Excellence, Clarkson University School of Engineering, Fall 2002.

ASME Minority Leadership Program Internship, 2001-2002.

Fellow, Outdoor Women's Leadership Seminar (Engineering Information Foundation sponsored), 2001-2003.

Engineering Education Scholars Program (NSF sponsored), University of New Hampshire, 2000.

GE Faculty of the Future Internship, Northwestern University, 1999-2000.

Walter P. Murphy Fellowship in Theoretical and Applied Mechanics, Northwestern University, 1997-1998.

Abbott Laboratories Annual Team Exposition: Showcases top performing teams during National Quality Month, 1996 (team leader).

Abbott Laboratories Annual Team Exposition: Showcases top performing teams during National Quality Month, 1995 (team leader).

Abbott Laboratories Chairman's Award for excellence in teaching Team Problem Solving, 1994.

Abbott Laboratories Chairman's Award for outstanding achievement in implementing a corporate-wide computerized maintenance management system, 1990.

Abbott Laboratories Engineering Management Leadership Program: Develops young engineers with strong management potential, 1990.

## **STUDENT HONORS AND AWARDS**

Dionne M. Dixon, NSBE Regional Student Paper Competition, First Place, 2003.

David E. Farrell, Walter P. Murphy Fellowship in Mechanical Engineering/Theoretical and Applied Mechanics, Northwestern University, 2003-2004.

Matthew M. Braun, Honorable Mention, NSF Graduate Research Fellowship Application, 2003.

Dionne M. Dixon, Ronald E. McNair Scholarship, Clarkson University, 2003.

Melissa C. Richards, Ronald E. McNair Scholarship, Clarkson University, 2003.

Exxon Mobil Foundation Grant, "Exploring Engineering" Program for High School Girls, Clarkson SWE Student Section, (\$1550), 2003.

Thadeus P. Casey, SES Student Paper Competition, Third Place, 2002.

ASME Diversity Action Grant, "Engineering a Storm Shelter" Outreach Program for Middle School Girls, Clarkson ASME Student Section, (\$1000), 2002.

## **TEACHING INTERESTS**

Teaching interests include: 1) use of collaborative learning, peer instruction and active learning methodologies in undergraduate engineering courses, 2) assessment of the effectiveness of instructional methods in increasing students' understanding of fundamental concepts, including development of concept inventory tools, and 3) investigation of the influence of student learning styles/personality types and different instructional methods on student performance.

## **TEACHING EXPERIENCE**

*Clarkson University*

2000 – Present

Outstanding New Teacher Award, 2003

School of Engineering Teaching Excellence: I have received this recognition every semester it has been awarded since the program inception in Fall 2002.

Course Taught

(Teaching evaluations: x.x/5.0; University average: 4.1) [Course enrollment]

ES222 Strength of Materials

Spring 2006 ( ) [97]

Fall 2005 (4.9) [52]

Fall 2004 (4.9) [40]

Fall 2003 (4.9) [25]

Spring 2003 (4.6) [75]

ME324 Dynamics of Mechanical Systems

Fall 2002 (4.8) [46], (4.6) [48]

Fall 2001 (4.5) [34]

Fall 2000 (4.5) [57]

ME457/ME557/AE457/CE421/CE521 Mechanics of Composite Materials

Spring 2005 (4.9) [45]

Spring 2004 (4.6) [35]

Spring 2002 (4.7) [37]

Spring 2001 (4.1) [29]

ME610 Mechanical and Aeronautical Engineering Seminar, Spring 2004

*Northwestern University*

1999

Faculty Intern, Dynamics of Mechanical Systems (teaching evaluations: 80%)

Teaching Assistant, Statics (teaching evaluations: 95%)

*Abbott Laboratories, Inc.*

1990 – 1997

Certified Trainer, Total Customer Satisfaction Program (teaching evaluations: 85%)

Interdisciplinary Team Problem Solving

Diversity Awareness

## PROFESSIONAL SERVICE

*National*

Journal Reviews: Journal of Structural Geology, Journal of Geophysical Research, Journal of Engineering Mechanics, Geological Society of London, Journal of Engineering Materials & Technology (Trans. of ASME), Journal of Professional Issues in Engineering Education and Practice (ASCE).

Proposal Reviews: National Science Foundation, US Department of Energy

Committees: ASCE Granular Materials Committee; ASME Geomechanics Technical Committee

Workshops: Organizer, Compaction Localization Workshop, October 2004, Warrenton, VA (sponsor: US Department of Energy, Basic Energy Sciences).

*Clarkson University*

Curriculum Committee for Biomedical and Rehabilitation Engineering and Science, 2005-Present

Honors Council: Research Committee, Undergraduate Thesis Advisor, 2001-Present

McNair Scholars Program, Undergraduate Research Advisor, 2003-Present  
Society of Women Engineers, Clarkson Student Section Advisor, 2002-Present  
School of Engineering: Education Strategic Planning Task Force, 2004-2005  
University Teaching Excellence Committee, 2003-Present  
Horizons Engineering Outreach Program for Middle School Girls: Panelist, 2001, 2002;  
Lecturer, 2004.

#### *Northwestern University*

Preparing Future Engineering Faculty Program (program founder), 1999-2000; Program is still conducted every two years by the Graduate Student Society

Engineering Career Program for Girls, Panelist, 1999

#### *Departmental – Mechanical & Aeronautical Engineering, Clarkson University*

Recruiting and Teaching Committee, 2001-Present

Curriculum Committee, 2000-Present

Graduate Committee, 2000-2001, 2005-Present

ASME Student Section Advisor, 2001-2002

## **SUMMARY OF INDUSTRY EXPERIENCE**

Managed a technical support group responsible for training, programming and operation of a computerized maintenance management system used by 1400+ employees producing over \$200 million in annual sales.

Formed, directed and facilitated numerous interdisciplinary teams in developing and implementing cost reduction and process improvement projects and solutions.

Provided technical support for the plant systems and utilities supporting a one million square foot research, development and manufacturing complex.

Designed and analyzed structures supporting piping, HVAC ductwork and equipment subject to three-dimensional loading conditions in nuclear power stations.

## **MEMBERSHIPS**

ASME, American Society of Mechanical Engineers

AGU, American Geophysical Union

SES, Society of Engineering Science

ASEE, American Society for Engineering Education

SWE, Society of Women Engineers

AAUW, American Association of University Women

## GRADUATE STUDENTS

### *Doctoral*

Vennela Challa, "Influence of the Third Invariant of Deviatoric Stress and the Intermediate Principal Stress on Constitutive Models and Localization Conditions for High Porosity Sandstone," 2005.

### *Master of Science*

Christopher J. DeMaria, "Fatigue Behavior of Aluminum Foam," Co-advisor: David Morrison (expected Fall 2006).

Keith Parnapy, "Modeling of Submicron Fiber Reinforced Composites," Co-advisor: John Moosbrugger (expected Fall 2006).

Matthew Black, "Inhomogeneous Deformation of Aluminum Foam Under Uniaxial Tension," (expected Spring 2006).

Dominick J. Werther, "Characterization and Modeling of Inhomogeneous Deformation Modes in Aluminum Foam," (expected Summer 2006).

Derek A. Bryl, "Inhomogeneous Deformation in Trabecular Bone Microstructure and Open Cell Aluminum Foam," (expected Spring 2006).

Jason A. Smith, "Effects of Porosity on Inhomogeneous Deformation Modes in Cellular Solids," (expected Spring 2006).

Jonathan P. Ingraham, "Two Dimensional Digital Image Observations of Adjacent Faces on an Orthorhomic Cymat Specimen Undergoing Uniaxial Compression," 2005.

Thadeus P. Casey, "Experimental Analysis of Compressive Deformation Modes in Aluminum Foam Using Surface Strain Mapping and Analog Test Data," 2003.

Vennela Challa, "Compaction Band Formation in High Porosity Sandstone: Theoretical and Numerical Analysis and Predictions," 2003.

### *Master of Engineering*

Sandra L. Martinez, "Experimental Investigation of a Shape Memory Alloy Engine," (expected Fall 2005).

## UNDERGRADUATE RESEARCHERS

(Post-BS career path noted; graduate study)

Steven J. Finley, "Effect of Increasing Randomness on Compressive Behavior of Honeycombs," ME445/446, 2005-2006. (BS expected 2006)

Lisa M. Sabini, "Effect of Random Defects in Compressive Behavior of Triangular Honeycombs," NSF REU and ME445/446, 2005-2006. (BS expected 2006)

Bridget A. Reardon, "Compressive Behavior of Reentrant Porous Materials," 2004; "Conditions for Compression Fractures in Trabecular Bone Microstructure," Honors Research, 2006-2007. (BS, expected 2007)

Andrea J. Howard, "Strain Localization Conditions in Metal Foams," McNair Scholar, 2004-2005. (BS, expected 2006)

Dominick J. Werther, "Strain Localization and Diffuse Bifurcation in Alporas Aluminum Foam," Honors Research and Thesis, 2004-2005. (BS, 2005; Graduate study, Clarkson University)

David A. Brush, "Quasistatic Propagation of Compaction Fronts in Metal Foam," Honors Research, 2004. (BS, 2005)

Dionne M. Dixon, "Theoretical Conditions for Compaction Band Formation in Metal Foams," McNair Scholar, 2003. (BS, 2004; General Electric Edison Engineering Program; Graduate study, Georgia Institute of Technology)

Melissa C. Richards, "Characterization of Compressive Behavior of Aluminum Foams," McNair Scholar, 2003. (BS, 2004; Graduate study, Clarkson University)

Christopher Kent, "Survey of Bone Behavior and Mechanics," NSF REU, 2003; "Discrete Element Modeling of Sandstone," 2003-2004. (BS, 2004; Sandia National Laboratories; Graduate study, University of New Mexico)

David E. Farrell, "Simulation of Localized Deformation in Metal Foams and Porous Sandstone," NSF REU, 2002-2003. (BS, 2003; Graduate study for PhD, Northwestern University)

Matthew M. Braun, "Strain Rate Sensitivity of Cymat Aluminum Foam," NSF REU, 2002, Honors Research and Thesis (BS, 2003; MS, UCLA)

John M. Boyle, "Computer Modeling of a Shape Memory Alloy Engine," Honors research and thesis (BS, 2002; MS, Ohio State University)

## **EXAMINATION COMMITTEES**

Justin Schrader, Mechanical Engineering, "Dual Torch P-GMA Welding of Thick Dissimilar Metals," MS Thesis Defense, March 2005.

Dong Zhou, Mechanical Engineering, "Substructure Based Modeling of Nickel Single Crystals Cycled at Low Plastic Strain Amplitudes" PhD Thesis Defense, November 2004.

Thulasidharan Gandhi, Mechanical Engineering, "Effect of Enhanced Buoyancy Force on the Unmixed Zone in Dissimilar Welds" MS Thesis Defense, August 2004.

Shen Wang, Civil Engineering, PhD Candidacy Exam, Spring 2004.

Wenming Zhao, Civil Engineering, "Computational Characterization of Damage and Fracture Propagation in Composite Structures," MS Thesis Defense, May 2003.

Suri Prachi, Civil Engineering, "Computational Simulation of Composite Structures Using Various Computational Tools," MS Defense, December 2002.

Jan Yia, Mechanical Engineering, "Cyclic Stress-Strain Response and Dislocation Substructure Evolution of Nickel," PhD Thesis Defense, January 2002.

Dong Zhou, Mechanical Engineering, "Cyclic Response and Substructure Evolution of Nickel: An FEM Analysis," PhD Thesis Proposal, November 2001.

Jan Yia, Mechanical Engineering, "Cyclic Stress-Strain Response and Dislocation Substructure Evolution of Nickel," PhD Thesis Proposal, August 2000.