ROBERT H. WAGONER

Professor Emeritus
January 25, 2021

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EMPLOYMENT

2013-	Professor Emeritus, Dept. Mat. Sci. & Enrg, Ohio State University
2001-12	George R. Smith Chair, Dept. Mat. Sci. & Enrg, Ohio State University
1998-	Professor, Dept. Mechanical Engineering, Ohio State University
1994-	Director, CAMMAC (Center for Adv. Matls. & Mfg. of Auto. Components)
1999-01	Distinguished Professor of Engineering, College of Engineering, Ohio State University
1992-96	Chair, Department of Materials Science and Engineering.
1990-91	Maître de Récherche, Ecole des Mines de Paris, Sophia Antipolis, France.
1983-	Professor (‘86-), Assoc. Professor (‘83-‘86), MSE Dept., Ohio State University
1977-83	Staff Research Scientist, General Motors Research Laboratories, Warren, MI.

SELECTED PROFESSIONAL ACTIVITIES

President, TMS Foundation, 2013-16.

Adjunct Professor, Pohang University of Science and Technology, 2007- .

President, Amer. Inst. of Mining, Metall. And Petro. Engrs (AIME), 2003-04.

Trustee, United Engineering Foundation (UEF), 2002-05

Organizer: NAE Frontiers of Engineering, Japan-American Frontiers of Engrg.,

NAE Chair: Gordon Cte. (’04), Matls. Peer Cte (’03), Materials Section (’03)

NAE Cte. Member: Committee on Membership ‘(04-‘07)

Board of Governors, *Acta Materialia* (1999-2002)

President, The Minerals, Metals and Materials Society (TMS) (1997-98)

President, TMS Foundation (1998-99)

Board of Trustees, Edward F. Orton Jr. Ceramics Foundation (1992-96)

Board of Directors, O.S.U. Research Foundation (1990-94)

Co-founder, NUMISHEEET international conferences (USA 89, Switzerland 91, Japan 93, USA 96, France 99, Korea 02, USA 05)

Member: NAE (Life), TMS (Fellow), ASM (Fellow), ASME (Fellow), SAE (Fellow)

SUMMARY ACCOMPLISHMENTS

29 Ph.D. dissertations and 24 M.S. theses advised; 17 post-doctoral researchers advised

>300 research publications (210 peer-reviewed), 2 edited vols., 2 books

110 international and invited presentations, 30 distinguished scholars & post-docs hosted

Google Scholar: 12600 citations, 56 h-index

AWARDS AND HONORS

2015 Charles S. Barrett Silver Medal: *For contributions to the science of metallurgy that most exemplify the efforts and career achievements made by Dr. Barrett*.

2011 Khan International Medal (Int. J. Plasticity): *Outstanding life-long contribution to the field of plasticity.*

2009 Doctor Honoris Causa (Honorary Doctorate): University of Cluj-Napoca, Romania. *For outstanding achievements…*

2008 Honorary Member (Fellow equivalent), AIME: *For research accomplishments…, as an educator…*

2007 Fellow of the Society of Automotive Engineers (SAE). For *important engineering, scientific, and leadership achievements … significance of and impact of …*

2007 Distinguished Service Award of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME). For *his leadership and dedication …*

2006 Fellow of the American Society of Mechanical Engineers (ASME). For *exceptional engineering achievements and contributions to the engineering profession*.

2006 Scott Faculty Award (Engineering College, OSU) – For *excellence in teaching and the qualitative aspects of teaching…* (OSU)

2004 Distinguished Service Award – *For outstanding contributions to TMS.* (TMS)

2003 Fellow of the Minerals, Metals and Materials Society (TMS) – *For outstanding contributions to the practice of metallurgy or materials science and technology*

2001 George R. Smith Chair in Engineering - *Endowed Chair* (1999-01, Dist. Prof. Engrg.)

2001 S. H. Melbourne Award (SAE) - For *most outstanding single contribution in 2000: "Springback Analysis with a Modified Hardening Model"* (w/ Lumin Geng).

2000 THERMEC 2000 Distinguished Award - For *outstanding contributions…*

1995 National Academy of Engineering - *For important contributions to engineering theory and practice including...unusual accomplishment...*

2008 Lumley Research Award (Engineering College, OSU) - *Based on the quality of sponsored research and graduate student advising activities*. (Also 2001, 1997, 93, 87)

1990 Fellow of ASM International - *Recognizes distinguished contributions in the field of Materials Science and Engineering.*

1990 Distinguished Scholar Award (Ohio State University) - *For a substantial and continuing record of excellence in scholarly activities.*

1988 Harrison Faculty Award for Excellence in Engineering (Engineering College, OSU) *For noteworthy accomplishments...contributions to engineering education.*

1988 Champion H. Mathewson Gold Medal (The Metallurgical Society) - *For the most notable contribution to metallurgical science during the period under review.*

1984 Presidential Young Investigator Award (National Science Foundation) - *For the most promising young science and engineering faculty.*

1983 Rossiter W. Raymond Memorial Award (Am. Inst. Mining, Metallurgical Petroleum Engineers) - *For the best paper published by AIME in a given period*. (Also 1981)

1981 Robert Lansing Hardy Gold Medal (Metallurgical Society) - *For outstanding promise for a successful career in the field of metallurgy.*

BIOGRAPHICAL SKETCH

(More information is available at https://people.engineering.osu.edu/people/wagoner.2)

Robert H. Wagoner is Professor Emeritus, Department of Materials Science and Engineering, The Ohio State University. From 1983 to 2012, he was Professor or Associate Professor of Materials Science and Engineering and Mechanical Engineering at OSU. From 1992 to 1996, he was Chairman of the MSE Department. From 2001 to 2012 he was the George R. Smith Chair.

Professor Wagoner is a member of the National Academy of Engineering (NAE) and Fellow of five professional societies in materials engineering, mechanical engineering, and automotive engineering: TMS, ASM International, ASME, SAE, and AIME. Before joining Ohio State, he was Staff Research Scientist at the G. M. Research Laboratories, 1977-83, and NSF Postdoctoral Fellow at the University of Oxford, 1976-77. He received B.S., M.S., and Ph.D. degrees in Metallurgical Engineering from Ohio State University in 1974, 1975, and 1976.

Dr. Wagoner's group performs a variety of research related to metal forming: experimental and analytical, applied and basic. He is the author of more than 300 technical articles, 2 proceedings volumes, 2 combined proceedings and authored books, and 2 text books in the areas of metal forming, plasticity theory, finite element analysis, mechanical behavior of materials and micro-mechanisms of deformation. According to Google Scholar, Dr. Wagoner's work has been cited approximately 10,000 times as of May, 2018. He has presented over 100 international and invited papers on these research topics, and has advised 24 masters and 29 doctoral student theses. Dr. Wagoner serves as a consultant to industry with regard to mechanical and materials engineering, particularly regarding die forming, sheet materials, medical devices and automotive applications.

His research has received national recognition, including the Robert Lansing Hardy Gold Medal, Rossiter W. Raymond Memorial Award (twice), Presidential Young Investigator Award, SAE Melbourne Award, and the Champion H. Mathewson Gold Medal. At OSU, Dr. Wagoner was named Distinguished Professor of Engineering in 1999 and Distinguished Scholar in 1990; he received the Harrison Faculty Award for Excellence in Engineering Education in 1988, and won College of Engineering Research Awards in 1987, 1993, 1997, 2001 and 2008.

Dr. Wagoner was President of AIME (The American Institute of Mining, Metallurgical, and Petroleum Engineers) in 2003-204, President of TMS (The Minerals, Metals, and Materials Society) in 1997-98 and President of the TMS Foundation in 1998-99. He was the co-organizer of the first and second *Japan-America Frontiers of Engineering* for the National Academy of Engineering. Other service work includes: Trustee of AIME, 1997-99; Trustee of Orton Ceramic Foundation, 1992-96; Governor of Acta Materialia, 1999-2002; and Director of the OSU Research Foundation, 1990-94. Recent service work for the National Academy of Engineering includes chairing the Gordon Prize Committee, chairing the Materials Section, and chairing the Materials Peer Committee, as well as being a member of the NAE-wide Committee on Membership.

AWARDS AND HONORS

2015 Charles S. Barrett Silver Medal and C.S. Barrett Award Lecture (Rocky Mountain Chapter of ASM).

For *individuals whose contributions to the science of metallurgy most exemplify the efforts and career achievements made by Dr. Barrett.*

2011 Khan International Medal (International Journal of Plasticity)**.**

For outstanding contributions in the field of Plasticity, contributions which have had a strong impact on the scientific foundations and engineering applications of the field.

2009 Doctor Honoris Causa, Technical University of Cluj-Napoca, Romania.

For outstanding achievements in the fields of Materials Science and Theory of Plasticity and for his contribution to the development of the cooperation between the Ohio State University of Technical University of Cluj-Napoca.

2008 Honorary Member of the American Institute of Mining, Metallurgical and Petroleum Engineers.

For research accomplishment in the mechanical behavior of materials, as an educator of generations of students in these areas, and for reforming AIME toward a sustainable future.

2007 Fellow of the Society of Automotive Engineers (SAE).

For important engineering, scientific, and leadership achievements. Election is based on significance of and impact of the cited performance, creativity or leadership as related to mobility technology.

2006 Distinguished Service Award of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME).

For his leadership and dedication as the 2003-2004 President of AIME, his untiring efforts in relocating the Institute headquarters, and his commitment to effecting the implementation of structural changes needed to insure the long-term financial survival of AIME.

2006 Fellow of the American Society of Mechanical Engineers (ASME).

Dr. Wagoner is a world expert in sheet metal forming in the automotive industry, including the mechanics of large-strain deformation, fundamental material behavior, finite element analysis, and novel applied testing."

2004 Distinguished Service Award (TMS)

The Distinguished Service Award recognizes outstanding contributions to TMS. The recipient must have exhibited exceptional devotion of time, effort, thought, and action toward furthering the Society's mission through administrative/functional activities.

2003 Fellow of The Minerals, Metals and Materials Society (TMS)

The Fellow Award is the highest honor bestowed by TMS; the number of Fellows is limited to 100. The award is conferred for "outstanding contributions to the practice of metallurgy or materials science and technology."

2001 Sydney H. Melbourne Award, Society of Automotive Engineers

The Melbourne award recognizes the author of the annual outstanding paper in the subject area. Lumin Geng was co-author of the subject paper: *Springback Analysis with a Modified Hardening Model*, SAE Paper Number 2000-01-0768.

THERMEC 2000 Distinguished Award

For outstanding contributions to solutions of industrial problems in sheet metal forming

1999 Distinguished Professor of Engineering

The first such position in the College of Engineering at The Ohio State University, it was created to honor *significant professional attainments, such as election to the National Academy of Engineering*

1997 President, The Minerals, Metals, and Materials Society

The President of TMS is elected by the membership and serves as the Chairman of the Board of Directors and as an officer of the corporation. .

1995 Member, National Academy of Engineering

For *contributions to the materials mechanics and manufacturing technologies aspects of industrial metal forming*.

1990 Distinguished Scholar, Ohio State University

For outstanding scholarly accomplishments by regular faculty members of The Ohio State University.

1990 Fellow, ASM International

For *significant contributions to the analysis of large-strain plasticity by advanced numerical methods and solutions to industrial problems in sheet metal forming, and for the development of numerous students in these areas.*

1988 Harrison Faculty Award for Excellence in Engineering Education

Recognizes and fosters the talents of young faculty who have demonstrated strong potential for achieving noteworthy accomplishments in the education of engineers and architects.

1988 Champion H. Mathewson Gold Medal

For a paper or series of closely related papers considered the most notable contribution to metallurgical science during the period under review. This award was based on a series of papers analyzing the sheet tensile test using finite element modeling.

2008 College of Engineering Research Award (also 2001, 1997, 1993, 1987)

Up to six members of the College of Engineering are selected annually to receive research awards based on the quality of their sponsored research and graduate student advising.

1984 Presidential Young Investigator Award

To provide *cooperative research support for the Nation's most outstanding and promising young science and engineering faculty*.

1983 and 1981 Rossiter W. Raymond Memorial Award

Recognizes the best paper published by the American Institute of Mining, Metallurgical, and Petroleum Engineers in a given period written by a member under 33 years of age. These awards were based on a paper published in *Metallurgical Transactions A*: 1982, vol. 13A, p.1491 - *Plastic Behavior of 70/30 Brass Sheet* and 1980, vol. 11A, p.165 - *Measurement and Analysis of Plane-Strain Work Hardening*.

1981 Robert Lansing Hardy Gold Medal

Recognizes the outstanding promise for a successful career in the broad field of metallurgy by a metallurgist under the age of 30.

CONSULTING & LEGAL ACTIVITIES

Selected Consulting and Testing Activities

Abaqus Central, Lafayette, Indiana
AC Engineering, Lafayette, Indiana
AK Steel Corporation, Middletown, Ohio
Air Products, Newark, New Jersey
Aluminum Car Consortium, ASME
Ambrosy and Fredericka, Warren, Ohio
American International Group, New York, NY
American Iron and Steel Institute
American Superconductor Corp., Westborough, MA
ArcelorMittal Global R&D
AutoDie, LLC, Grand Rapids, MI
Auto/Steel Partnership, Southfield, Michigan
Baker and Daniels, Fort Wayne, Indiana
Benz Oil Company, Milwaukee, Wisconsin
Borg Warner, Lombard, Illinois
Brinks, Hofer, Gilson & Lione, Chicago, Illinois
Calgon Corporation, Pittsburgh, Pennsylvania
CAM Enterprises, Harrison Twp., MI
Cannon and Dunphy S.C., Brookfield, Wisconsin
Castrol Industrial North America, Inc., Downers Grove, IL
Caterpillar, Inc., Urbana, Illinois
Chrysler Group, LLC, Auburn Hills, Michigan
Cook Industries, West Lafayette, IN
Corus Technology, The Netherlands
Edison Welding Institute, Columbus, Ohio
Engineering Systems Incorporated, Aurora, Illinois
Engineering Systems International, Paris, France and Detroit, Michigan
Engineering Technology Associates, Zurich, Switzerland
Englehard Metals, Iselin, NJ
FiatChrysler Automobiles, Auburn Hills, MI
FEM Engineering, Inglewood, CCA
GM Shanghai, Shanghai, China
Henckels and Mccoy, Philadelphia, PA
Hurwitz & Fine, P.C., Buffalo, NY
Industrial Perforators Association, Boca Raton, FL
Inter-City Products, Fort Wayne, IN
International Chemical Company, Philadelphia, PA
Irmco Metalstamping Programs, Evanston, IL
John Deer Corporation, Horicon, WI
Jones & Bahret, Holland, OH
Keating, Muething & Klekamp, PLL, Cincinnati, OH
Keener, Doucher, Curley and Patterson, Columbus, OH
Kevin Kennedy and Associates, Indianapolis, IN

Lear Corporation, Morristown, TN
McCaslin, Imbus & McCaslin, Cincinnati, OH
McDermott, Will & Emery, Orange County, CA
McDermott, Will & Emery, Washington, DC
Marwedel, Minichello & Reeb, Chicago, IL
Mayer Brown LLP, Chicago, IL
MED Institute, Lafayette, IN
Metronic Vascular Inc., Minneapolis, MN
Michael Best & Friedrich, LLC, Chicago, IL
Nalco Chemical Company, Naperville IL
Nein Law Offices, Columbus, OH
North American Stainless, Ghent, KY
Oakes Foundry, Warren, OH
Oblon, Spivak, McClelland… Alexandria, VA
Olson & Cepuritis, Ltd., Chicago, IL
Pepper Hamilton LLP, Southfield, MI
Posco Steel, Incheon, S. Korea
Posco Technical Research Labs
Philip-Morris Corporation, Richmond, VA
Reynolds Metals Corporation, Richmond, VA
Ross Laboratories, Columbus, OH
Schottenstein, Zox, and Dunn, Columbus, OH
Secat, Inc., Lexington, KY
Shiff, Hardin & Waite, Chicago, IL
Shiloh Industries, Dayton, OH
Steel Marketing Development Institute, Southfield, MI
Superior CAM, Madison Heights, MI
Toyota Technical Center. Ann Arbor, MI
Thomas Steel Strip Corporation, Warren, OH
Utilase, Inc., Detroit, MI
Worthington Cylinders, Worthington, OH
Worthington SteelPac, Worthington, OH

Selected Expert Witness & Legal Consulting Activities

Stone removal baskets, patent infringement (2015 -)
Inter parte review petition
Stone Basket Innovations v. Cook Medical LLC
Low-temperature process to produce steel (2014 -)
Ex Parte Reexamination request
Process for accelerated heat treatment (2014 -)
Hitkansut LLC, et. al. v. U.S. Government
Failure of Chain Hoist / Come-Along (2012-13)
Steve Kirschner v. Certified Constructors' Services, Inc.
Automotive seat weight sensor, patent infringement (2012 - 13)
TK Holdings, Inc. v. CTS Corp.
Sheet Forming Die Design Software, patent infringement (2011-14)

AutoForm Engineering GmbH v. Engineering Technology Assocs., Inc.
Failure of bull gear, product liability (2010 - 13)
Luvata v. Service Guide
Peripheral stents, patent infringement (2007-8, 2011 -)
Edwards Lifesciences, EngoGAD v. Cook Inc. and W. L. Gore & Assoc.
Boston Scientific et al. v. Cook Inc.
Steel processing, press hardening, patent infringement (2006, 2010-2012)
ArcelorMittal France v. AK Steel Corp., Severstal Dearborn, Wheeling-Nisshin.
Failure of semi-tractor wheel, product liability (2008- 10)
Percutaneous endovascular stents, patent infringement (2004-05):
Metronic Vascular vs. Boston Scientific
Medtronic Vascular vs. Cordis Corp.
Medtronic Vascular vs. ACS Inc.
Cordis v. Medtronic Vascular
Percutaneous endovascular stents, patent infringement (2000-2003):
Cook Inc. vs. Scimed Life Systems, Inc., Boston Scientific Corp., and Meadox Medicals, Inc., Cook Inc. vs. Bard Inc.
Cook Inc. vs. Cordis Corp.
Aluminum baseball bats, patent infringement
Wilson v. Hillerich and Bradsby (2001-04)
Failure of truck trailor assembly, product liability (1998-99)
Willis v. Transamerica et al.
Failure of roller compensating chain in cherry picker, product liability (1997-98):
Faith Cummins, et al. v. Henkels & McCoy, Inc.
Out-of-specification failure of pressure relief disks, manufacturing liability (1994-95):
Worthington Cylinder Corp. v. Cap and Seal Company

THESES AND DISSERTATIONS ADVISED

MS Theses

1. Yufei Gao, *Model of Heat Generation Effects During Uniaxial Tensile Test,* Autumn 1985
   Currently: Senior Research Scientist, Environmental Molecular Sciences Lab., Pacific Northwest National Lab., Richland, WA.

2. Thana Ruangsilasingha, *A Study of Heat Transfer Coefficients,* Summer 1986
   Currently: Siam Construction Steel Company, Bangkok, Thailand.

3. Julie R. Knibloe (now Julie K. Wright), *Experimental Investigation and Finite Element Modeling of Hemispherically Stretched Steel Sheet,* Spring 1988
   Currently: Staff Scientist, Idaho National Engrg. Lab., Idaho Falls, ID.

4. Stephane R. Latreille, *Non-isothermal Finite Element Modeling of Hemispherically Stretched Steel Sheet,* Spring 1989

5. Chuan Tao Wang, *Comparison of Strain Distributions in Square Punch/Stretching: FEM vs. Experiment*, Winter 1990
   Currently: Research Scientist, G.M. Die Management Group, Warren, MI.

6. Michael P. Miles, *A Better Sheet Formability Test,* Summer 1991
   Currently: Project Engineer, American National Can, Chicago, IL.

7. Yuji Hishida, *Numerical and Experimental Analysis of the Effects of Blank Holding Force Control in Sheet Forming,* Summer 1992
   Currently: Nissan Motor Company, Kanagawa, Japan.

8. Frederick I. Saunders, *Finite Element Modeling of New Laboratory Sheet Forming Tests,* Summer 1993
   Currently: Research Engineer, G.M. NAO R&D, Warren, MI.

9. Sriram Sadagopan, *Industrial Verification of a New Sheet Formability Test System,* Summer 1995
   Currently: Research Assistant Professor, Colorado School of Mines

10. Mark C. Stasik, *Forming of Laser-Welded Aluminum Alloys,* Fall 1995
    Currently: Project Engineer, G.M. NAO Manufacturing, Warren, MI.

11. Ning He, *Simulation of Springback in Sheet Forming - Industrial Experience,* Winter 1996
    Currently: Tool Design Engineer, MascoTech Forming Technology, Royal Oak, Michigan.

12. Mary J. Ticknor, *Problem-Solving in an Industrial Environment*, Spring 1996.
    Currently: Engineering Coordinator, Motorcycle Quality Control, Honda of America Mfg. Inc.

13. Chris Wong, *Influence of Tool Geometry on Formability of Deep Drawn Rectangular Parts*, Spring 1996.
    Currently: Stamping Engineer, Modern Engineering, Troy, MI.

14. Vivek Talyan, *Formability of Austentitic and Ferritic Stainless Steels* (co-advised by J. K. Lee, Applied Mechanics Program), Spring 1997.
    Currently: LCI International, Dublin, Ohio

15. William D. Carden, *Springback After Bending and Drawing of Metal Sheets*, Summer 1997.
    Currently: Monteagle Corporation, Birmingham, Alabama

16. Wendy P. Carden, *Analysis of Springback in Draw-Bend Forming*, Summer 1997.
    Currently: Monteagle Corporation, Birmingham, Alabama

17. Yao Shen, *Simple/Reverse Bending Test for Measurement of In-Plane Baushinger Effect in Sheet Materials*, Winter, 1999.

18. Vijaykumar Balakrishnan, *Measurement of In-Plane Bauschinger Effect in Metal Sheets*, Winter, 1999.

19. Wei Kang, SHEET-S Report (non-thesis report), Winter, 1999. (Co-adviser: Gary L. Kinzel, Mechanical Engineering)

20. Yuehong Fu, *The Effect of Pressure Cycling on Density and Particle Distributions of Metal Matrix Composites*, Spring 2000.

21. Karthik Viswanathan, *The OSU Formability Test To Assess the Formability of Sheet Metals*, Summer 2000.

22. Xiaoyuan Lou, *Evolution of Hardening in AZ31B Magnesium*, Summer 2005.

23. Michael Gram: *Fineblanking of Advanced High Strength Steels: Control of Material Properties for Tool Life*, Summer 2010.

24. Anthony Smith: Procedure and Results for Constitutive Equations for Advanced High Strength Steels Incorporating Strain, Strain Rate, and Temperature, Summer 2012.

Ph.D. Dissertations

1. Muh-Ren Lin, *Experimental Investigation of Temperature Effect on Uniaxial Tensile Test,* Spring 1986
   Currently: Senior Product Engineer, Motorola Inc., Mesa, AZ.

2. Kavesary S. Raghavan, *An Analytical Investigation of the Combined Effect of Geometric Defects and Thermal Gradient on Tensile Ductility,* Summer 1986
   Currently: Research Engineer, Bethlehem Steel Corp., Bethlehem, PA.

3. Zhiyong Shen, *An Investigation of Dislocation Movement through Metallic Grain Boundaries*[*], Winter 1987
   Currently: System Engineer, C/NET Inc., San Francisco, CA.

4. Yong Hwan Kim (Engineering Mechanics Department), *Analysis of Deformation-Induced Heating in Tensile Testing using a Finite Element Method*[*], Spring 1987
   Currently: Associate Professor, Chungnam University, Taejon, Korea.

5. Anne E. Browning (now Anne B. Doucet), *Experimental Investigation of Stress Transients in Interstitial-Free and 70/30 Brass*[**], Summer 1987
   Currently: Research Engineer, British Petroleum, Houston, TX.

6. Young Tag Keum, (Engineering Mechanics Department),*Compatible Description of Tool Surfaces and FEM Meshes for Analyzing Sheet Forming Operations in Two and Three Dimensions,* Winter 1990
   Currently: Associate Professor, Dept. Precision Mech. Engrg., Han-Yang University, Seoul, Korea.

7. Zhi Cong Yao, *Analysis of Slip System Activation in Fe-Si Bicrystals and Strain-Annealed Al Multi-Crystals,* Winter 1990
   Currently: Senior Material Development Engineer, Chrysler Corp. Auburn Hills, MI.

8. Hongyan Zhang (co-advised with Glenn S. Daehn), *Numerical and Analytical Predictions of Thermo-Mechanical Behavior of Metal Matrix Composites,* Fall 1991
   Currently: Professor, University of Toledo.

9. Yong-Ching Chen (co-advised with Glenn S. Daehn), *Elevated Temperature Deformation and Superplasticity of Metal Matrix Composites,* Fall 1991
   Currently: Technical Specialist, Cummins Engine, Columbus, IN.

10. Dajun Zhou, *Development and Testing of A New Algorithm for FEM of Sheet Forming,* Fall 1993
    Currently: Senior Forming Engineer, Modern Engineering, Troy, MI.

11. Frederick I. Saunders, *Forming of Tailor-Welded Blanks,* Summer 1994
    Currently: Senior Research Engineer, G.M. NAO R&D, Warren, MI.

12. Wei Wang, *Analysis of Punch Friction under Realistic Sheet Forming Conditions,* Fall 1994
    Currently: Manager, Automotive Product Applications, Rouge Steel Company, Dearborn, MI.

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[*] A poster presentation based on this thesis was judged "Best of Show" at the 1986 Fall Meeting of the Metallurgical Society in Orlando, Florida, October 1986

[*] A paper based on this thesis was the winner of the first ASM International Graduate Student Paper Contest in 1987.

[**] A paper based on this thesis was the winner of the 1987 Metallurgical Society Graduate Student Paper Contest.

13. Sriram Sadagopan, *The EBG Method: Introduction of Bending Stiffness in Membrane FEM Programs*, Spring 1997.
Currently: Senior Engineer, Applications Technology, Ispat Inland, Inc., East Chicago, IN.

14. Lumin Geng, *Application of Plastic Anisotropy and Non-Isotropic Hardening to Springback Prediction*, Spring 2000.
Currently: Research Engineer, CAE Metal Forming Analysis, GMNA, Warren, MI.

15. Guangbin Jiang, *Consolidation of Metal Matrix Composites under Cyclic Pressure*, Summer 2000 (co-advisor: Glenn S. Daehn).
Currently: Advanced Applications Engineer, Rudolph Technologies, Inc., Flanders, NJ.

16. Jue Wang, *A New Hexahedral Solid Element for 3D FEM Simulation of Sheet Metal Forming*, Summer 2002.
Currently: R & D Engineer, SIFCO, Cleveland, OH.

17. Yangwook Choi, *Modeling Evolution of Anisotropy and Hardening for Sheet Metals*, Summer 2003. (Mechanical Engineering) (Co-advised by J. K. Lee and M. Walter)
Currently: ABAQUS, Inc., Pawtucket, RI.

18. Jianfeng Wang, *Principles of the Draw-Bend Springback Test*, Winter 2004.
Currently: Sr. Mechanical Analyst, Intel Corporation, Shanghai, China.

19. Xuan Peng, *Co-deformation and Bonding of Multi-component Billets with Application to Nb-Sn Based Superconductor Processing*, Fall 2005. (Co-advised by M. Sumption)
Currently: Hyper Tech Research, Columbus, Ohio.

20. Wei Gan, Precipitation and Strengthening in Al-Ge-Si Alloys, Fall 2005.
Currently: Medtronic, Minneapolis, MN.

21. Min Li, *Constitutive Modeling of Slip, Twinning, and Untwinning in AZ31B Magnesium*, Winter 2006.
Currently: Application Engineer, Abaqus Central, W. Lafayette, IN

22. Richard K. Boger, *Bauschinger Effect and Its Continuum Representation in 6013 and 2524 Aluminum Alloys*, Winter, 2006.
Currently: Application Engineer, Abaqus Central, Cincinnati, OH

23. Shoubing Zhuang, *Enhancing Implicit Finite Element Simulation*, Spring, 2008.
Currently: Algor, Inc., Pittsburgh, PA.

24. Ke Chen, *The Origin of Coarse Grain Structure in Friction-Stir Welded AA5083 after Heat Treatment*, Winter, 2009. Currently: Assistant Professor, Shanghai Jiao Tong University, Shanghai, China.

25. Jihyun Sung, *The Causes of "Shear Fracture" of Dual-Phase Steels*, Winter 2010.

Currently: Senior Researcher, Korea Institute of Industrial Technology, South Korea.

26. Hojun Lim, *Meso-Scale Modeling of Polycrystal Deformation*, Spring 2010.
Currently: Post-Doctoral Researcher, Sandia National Laboratory, Albuquerque, NM.

27. Li Sun, *Complex Unloading Model for Springback Prediction*,, Spring 2011
Currently: Researcher, GM China Science Laboratory, Manufacturing Process Research, Shanghai, China

28. Kun Piao, *An Elevated-Temperature Tension-Compression Test and Its Application to Mg AZ31B*, Fall 2011.
Currently: Proctor and Gamble, Cincinnati, Ohio.

29. Zhong Chen, The Elastic-Plastic Transition of Metals: A Universal Law, Summer 2015.
Currently: Ford Research and Innovation Center, Dearborn,

OTHER ADVISEES AND DISTINGUISHED VISITORS

Distinguished Visitors:

Professor Hisashi Nishimura, Tokyo Metropolitan University (3/86-6/86) (sabbatical visit)

Professor Terufumi Machida, Tamagawa University, 2/86-3/86)(sabbatical visit)

Dr. Yves Germain, Ecoles des Mines, Paris (7/86- 1/88)(University Fellow)

Dean Vinod K. Tewary, Birla Inst. Technol., Pilani, India (8/85-8/86) (sabbatical visit)

Assoc. Prof. Eiji Nakamachi, Yatsushiro Natl. Coll. Technol., Japan (9/87-10/88) (sabbatical)

Lecturer Shuji Sakaki, Tokyo Metro. Inst. Technol., Japan (9/88-11/88) (sabbatical visit)

Assoc. Professor Michal J. Saran, Chalmers Univ. Technol., Gothenburg, Sweden (5/89 - 91)

Professor and Chair Xianjin Wang, Univ. Sci.and Technol., Beijing, China (8/89 - 12/89)

Mr. Lu Jihuang, Senior Engineer, Nanjing Automation Research Institute, China (7/90-present)

Professor Toshio Tatenami, Osaka Sangyou University, Osaka, Japan (8/91 - present)

Prof. and Chair Ralph Crafoord, Chalmers Univ. Technol., Gothenburg, Sweden (9/91-6/92)

Prof. and Chair John L. Duncan, Dept. Mech. Engrg., University of Auckland (9/92-12/92)

Professor Yoshio Haruyama, Toyama Prefectural University, Japan (10/95 - 9/96)

Dr. Ming Yang, Dept. Mech. Engrg., Tokyo Metropolitan University, Japan (6/96 - 10/96)

Professor Xiaoguang Jin, Yanshan University, Qinhuangdao, China, 6.98-6/99,

Professor Yong-Shin Lee, School of Mechanical Engineering, Kookmin University, Korea (7/98-6/99)

Professor Dr. Jin Xiaoguang, Rolling Mill Institute, Yanshan University, China (5/98-5/99)

Prof. Kunio Isobe, Dept. of Mechanical Engineering, Toyama National College of Technology, Toyama City, Japan (6/01-10/01)

Professor Young T. Keum, Hanyang University, Seoul, Korea (2005-09, partial)

Mr. Sadok Gaied, Technical University of Compiegne, Compiegne, France(4/07-8/07)

Mr. Padmanabhan Raghupathy, CEMUC, Dept. Mechanical Engineering, University of Coimbra, Portugal (9/07-12/07)

Professor Dayong Li, Shanghai Jiao Tong University, Dept. Mechanical Engineering (12/14-12/15)

Associate Professor Xiangdong Wu, Beihang University, Beijing, China (10/15-9/16) (hosted with Alan Luo)

Post-Doctoral Researchers

Dr. Kwansoo Chung, Research Scientist, Alcoa Laboratories, Alcoa Center, PA (5/84-1/87)

Dr. Dwight A. Burford, Boeing Military Airplanes, Wichita KS (6/86-6/88)

Dr. Yong H. Kim, Dept. Mechanical Design, Chungnam U., Korea (3/87-9/87)

Dr. Narasimhan Krishnaiyengar, Dept. of Metallurgical Engrg., I.I.T. Bombay (4/88-9/91)

Dr. Young T. Keum, Dept. Precision Mech. Engrg., Han-Yang University, Korea (12/90-6/91)

Dr. Yeong Sung Suh, Department of Mechanical Engineering, Rensselaer Polytechnic Institute (9/91-8/93) Now at Hannam University, Korea

Dr. Xiaoyu Hu, Dept. Materials Science and Engineering, Polytechnic University (6/92-94)

Dr. Hongyan Zhang, Dept. Mat. Sci. Engrg., Ohio State University (1/92-9/93)

Dr. Dajun Zhou, Dept. Materials Science and Engineering, Ohio State University (9/93 - 95)

Dr. Xiao Xin, University of Cambridge, England (1995 - 1998)

Dr. Ashoka Jinka, University of Swansea, Wales (1995 - 1996)

Dr. Kaiping Li, University of Liege, Belgium (1996 - 2000)

Dr. Chung-Souk Han, University of Hannover (2000 - 2003)

Dr. Myoung-Gyu Lee, Seoul National University (2004 - 2007)

Dr. Ji Hoon Kim, Seoul National University (2007 - 2010)

Dr. Hojun Lim, Ohio State University (2010 -)

SERVICE ACTIVITIES

Service to Institutions

Doctor Honoris Causa, University of Cluj-Napoca, Romania (2009-)
Adjunct Professor, Pohang University of Science and Technology (2007 -)
Panel Evaluator, Norwegian Research in Engineering Science, Research Council of Norway, Trondheim, Norway, February 27-March 5, 2004
Honorary Professor, University of Science and Technology - Beijing, Beijing, China (1993-)
President, American Institute of Mining, Metallurgical, and Petroleum Engineers (2003-04)
President, Minerals, Metals and Materials Society (1997-98) (Director, 1992-99)
President, TMS Foundation (1998-99)
Trustee, AIME (Amer. Institute of Mining, Metall. and Petro. Engrs.) (1997-99, 2001-05)
Trustee, UEF (United Engineering Foundation) (2002-05)
Board of Governors, *Acta Materialia* (1999-2002)
Trustee, Edward Orton Ceramic Foundation (1992-96)
Director, O. S. U. Research Foundation (1990 - 1994)
Chair, Detroit Section of The Metallurgical Society (1982-83), Member Executive Committee(1978-83)
Chair, Board of Review, *Metallurgical Transactions A* (1985-86) (Member, 1978- 93)

Committee Service

National Academy of Engineering:
Chair, Gordon Prize Selection Committee (2004); Committee on Membership (2003-06); Chair, Materials Section (2003), Chair, Peer Committee for Materials Engineering (2003); Organizer, First Japan-America Frontiers of Engineering (2000); Organizer, Frontiers of Engineering, Irvine California (1997, 1998, 1999), Gordon Prize Selection Committee (2001-2004); Peer Committee for Materials Engineering (2000-03); Committee on Human Rights (1995-99); NRC Study: Future of Materials Science and Engineering (1997-98)

TMS, The Minerals, Metals, and Materials Society:
Chair, Ad-hoc Committee on Governance (2008); President (1997-98); President, TMS Foundation (1998-99); Board of Directors (1992-99); Division Director, Manufacturing and Materials Processing Division (1992-95); Chair, Shaping and Forming Committee of TMS-AIME(1985-87); Chair, Detroit Section of The Metallurgical Society (1982-83), Member Executive Committee(1978-83); Student Affairs Committee (1985-88); Reviews and Awards Committee TMS (1984-86); Book Publication Committee TMS (1983-86); Publications Committee, TMS (1986-87); Mathewson and Hardy Gold Medal Award Committee (1988-1991); Raymond Memorial Award Committee (AIME) (1988-92); Continuing Education Committee (1991-); Executive Committee (1991-).

ASM International:
Council of Fellows (1990);, Howe and Grossman Award Committee (1996-1999); Executive Committee, Columbus Chapter (1983-86)

Executive Committee, North American Deep Drawing Research Group (1990-1994)

Selected Conferences Organized

Co-founder, NUMISHEET Conferences (1988-89, and subsequently in 1991, 1993, 1996, 1999, 2002, 2005, 2008, and 2011 world-wide)

NAE Frontiers of Engineering (1997, 98, 99), and Japan-America Frontiers of Engineering (2000)

Co-organizer, *NUMIFORM '92 - Numerical Methods in Industrial Forming Processes*, Sophia-Antipolis (and committee member for subsequent meetings)

Co-organizer, *EUROMAT '92 - Int. Conf. on Materials Development in Rail, Tire, Wing, Hull Transportation*, Genoa, Italy (September 22-24, 1992)

Member, Organizing Committee, *International Conference on Technology of Plasticity*, Columbus, Ohio (October 1996) (and selected subsequent conferences)