**Junkun Ma**

**Business Address: Permanent Address:**

Dept. of Computer Sci. & Industrial Tech. 143 Dunleith Ln.

SLU 10847, Southeastern Louisiana Univ. Mandeville, LA 70471

Hammond, LA 70402 Cell: (985)630-9466

Phone: (985)549-2501 Email: junkun.ma@selu.edu

***EDUCATION***

**Ph.D., Engineering Science/Applied Mechanics (Joint Doctoral Degree) *2004***

Dept. of Mechanical Engineering San Diego State University

Dept. of Mechanical and Aerospace Engineering University of California, San Diego

Dissertation: Synthesis of Dense TiC-Ti Based Cermets via Self Propagating High Temperature Synthesis and Quasi-Isostatic Pressing

**M.S., Mechanical Engineering *1999***

Dept. of Mechanical Engineering N. China Electric Power University

Thesis: Safety and Durability Evaluation of High-Pressure Vessels Containing Non-Through Defects

**B.S., Applied Engineering Mechanics *1996***

Dept. of Applied Engineering Mechanics Tsinghua University

Thesis: Distribution of Elastic-Plastic Field on Circular Rings Containing a Rounded Tip V-Notch under Incline Compressive Load

***PROFESSIONAL EXPERIENCE***

##### Associate Professor of Engineering Technology (tenure track)

###### *Dept. of Agricultural Sci. & Engineering Tech., Sam Houston State Univ. 08/2013 ~ 07/2016*

***Teaching:***

ETDD 1361: Engineering Graphics – Fundamental Engineering Drafting

ETDD 3310: Product Design and Development - Processes of Product Design

ETEC 4369: Manufacturing Processes and Systems - Manufacturing Methods

***Research:***

* Simulation and modeling based on Finite Element Analysis (FEA) method
* Alternative energy and its integration into LEED certified construction

***Service:***

* Curriculum development of the Design and Development program

##### Associate Professor of Engineering Technology (tenured)

###### *Dept. of Computer Sci. & Industrial Tech., Southeastern Louisiana Univ. 08/2013 ~ 07/2016*

***Teaching:***

ET205: Mathematical Methods for Engineers – Post-calculus mathematics

ET241: Introduction to Engineering Materials – Fundamentals of engineering materials

ET271: Engineering Statics – Forces, equilibrium, moments, and work of rigid bodies

ET361: Solar Thermal Systems – Solar thermal systems and their applications

ET381: Strength of Materials – Mechanics and strength of engineering materials

ET385: Mechanical Design – Design of mechanical components and mechanisms

ET433: Wind Turbines – Technologies, applications, and economics of wind turbines

ET480: Advanced Strength of Materials – Finite Element Method stress/strain analysis

ET493/494: Senior Design I/II– Capstone design projects

ISAT770: Graduate Thesis – Investigation of a significant interdisciplinary topic

***Research:***

* Simulation and modeling based on Computational Fluid Mechanics (CFD) method
* Development of a sustainability center in which various alternative energy systems are integrated together for undergraduate research and education purposes

***Service:***

* Lead the efforts to apply for, and successfully obtained ABET accreditation for the Engineering Technology program for six years
* Serving as the undergraduate coordinator for the Engineering Technology program
* Serving as senator on behalf of the department in the university faculty senate
* Serving the university facility planning committee and experiential learning council
* Serving other duties such as judge for future city and science fair competitions

##### Assistant Professor of Engineering/Industrial Technology (tenure track)

###### *Dept. of Computer Sci. & Industrial Tech., Southeastern Louisiana Univ. 08/2007 ~ 07/2013*

***Teaching:***

IT209/309: Special Topics – Organized class or individual instruction

IT264: Industrial Fluid Power – Theory and practice of hydraulic and pneumatic systems

IT322: Material Science and Metallurgy – Study of major industrial materials

IT406: Facility Planning – Principles, methods, and techniques for facility planning

ET205; ET241; ET271; ET361; ET381; ET385; ET433; ET480; ET493/494; ISAT770

ET465: Industrial Simulation & Modeling – Simulation of manufacturing process

ISAT592: Scientific Visualization – Computer visualization of scientific data

***Research:***

* Computational Solid/Fluid Mechanics based on Finite Element Method (FEM)
* Development of functional gradient multi-layered composite materials for thermal management of micro-electronics
* Modeling and simulation of sintering of particulate materials

***Service:***

* Lead the effort to create and build curricula and course materials for the Engineering Technology program
* Served as the curriculum chair for the Engineering Technology program to create and get University Curriculum Committee to approve 60 new courses
* Served as the undergraduate coordinator for the Engineering Technology program
* Serving other duties such as judge for future city and science fair competitions

##### Visiting Assistant Professor

###### *Division of Math and Natural Science, Penn State Univ., Altoona 04/2005 ~07/2007*

* Taught calculus based General Physics and algebra based Technical Physics
* Research focusing on single mode microwave powder metal processing and sintering
* Supervised undergraduate students on research projects

##### Postdoctoral Fellow

###### *Powder Technology Laboratory, San Diego State University 11/2004 ~ 04/2005*

* Taught Finite Element Method
* Research focusing on microwave heating and sintering of powder materials
* Supervised undergraduate and graduate students

##### Co-Op Internship

*RAS Computer Analysis Lab, Sun Microsystems Inc. San Diego, CA 06/2003 ~ 11/2004*

* Development of functional gradient composite material for thermal management of high-power micro-electronics
* Research focusing on electro-deposition of copper

##### Graduate Research Assistant

*San Diego State University/ University of California, San Diego 09/1999 ~ 11/2004*

* Research focusing on development of cermets composite using combined self-propagating high-temperature synthesis and quasi-isostatic pressing method
* Teaching assistant of Finite Element Method, Scientific Visualization, and Strength of Materials

##### Mechanical Engineer

*DeShiChuang Corp. Beijing, China 06/1996 ~ 07/1999*

* Mechanical design using Computer Aided Design (CAD) software
* Software development for application such as telephone banking
* Business development such as preparing project bid package

***PUBLICATIONS***

**Journal papers**

* **J. Ma,** K. Cris, *Effects of Design Parameters on the Fluid Flow and the Efficiency of Single Ended Evacuated Tubular Solar Thermal Collectors via FEM Modeling and Experimentation*, Engineering Journal, Vol. 19, No 5 (2015).
* **J. Ma**, E.A. Olevsky, *Numerical Simulation of Densification and Deformation of Porous Bodies in a Granular Pressure-Transmitting Medium*, Advances in Sintering Science and Technology, Ceramic Transactions, Vol. 209, Pages 113-124 (2009).
* **J. Ma**, G.J. Weisel, B.L. Weiss, N.M. Miskovsky, D.T. Zimmerman, *Systematic Study of Microwave Absorption, Heating, and Microstructure Evolution of Porous Copper Powder Metal Compacts*, J. of Applied Physics, 101, 074906 (2007).
* E.A. Olevsky, **J. Ma** and M.A. Meyers, *Densification of Porous Bodies in a Granular Pressure-Transmitting Medium*, Acta. Materialia, Vol. 55, Issue 4, Pages 1351-1366 Feb., (2007).
* **J. Ma**, E.A. Olevsky, and M.A. Meyers, *Modeling of pressure transmission during post-reactive-sintering quasi-isostatic pressing*, Sintering 2003, Eds. R.M. German, G.L. Messing, R.G. Cornwall, 6 p. (2003).
* H. Shi, **J. Ma**, X. Qing, *Distribution of Elastic-Plastic Field on Circular Rings Containing a Rounded Tip V-Notch under Incline Compressive Load*, Chinese Journal of Applied Mechanics, Page 13, No2, (1999).

**Conference proceedings and presentations**

* **J. Ma**, K. Cris, Evaluation of Design Efficiency via COMSOL Simulations, 2014 EPSCoR Industry-Academia Workshop on Advanced Materials and Manufacturing, New Orleans, November (2014)
* **J. Ma**, *Microwave and Spark Plasma Sintering(SPS): recent experimental development, modeling and simulation using COMSOL Multiphysics*, Pole University Leonard De Vinci International Week, Paris, France. March, (2013)
* **J. Ma**, A. Parker, K. Kuan, *Thermal Properties of Copper Tungsten with Copper Via Composite*, International COMSOL 2011 Conference, Boston, MA, October, (2011).
* **J. Ma**, X. Wei, *Efficiency of Evacuated Tubular Solar Thermal Collector*, International COMSOL 2011 Conference, Boston, MA, October, (2011)
* K. Kuang, D. Zhu, **J. Ma,** *Development of Super Copper Tungsten IMAPS ATW on RF/Microwave Packaging*, San Diego, CA, September, (2009).
* **J. Ma**, X. Wei, *Numerical Study of the Performance of a Super CuW / BeO Package IMAPS ATW on RF/Microwave Packaging*, San Diego, CA, September, (2009).
* D. Zimmerman, J. Diehl, E. Johnson, K. Martin**, J. Ma**, *Systematic Study of Microwave Absorption, Heating, and Microstructure Evolution of Porous Copper Powder Metal Compacts*, APS Spring 2008 Conference, New Orleans, March, (2008).
* K. Martin, J. Cardellino, E. Johnson D. Zimmerman, **J. Ma**, *Percolation Studies of Metal-insulator Composites at Microwave Frequencies,* APS Spring 2008 Conference, New Orleans, LA March, 2008
* **J. Ma**, C.T. Smith, G.J. Weisel, B.L. Weiss, N.M. Miskovsky, D.T. Zimmerman, *Single Mode Microwave Heating of Copper Powder Metal Compacts*, COMSOL User Conference, Boston, Oct. (2006).
* **J. Ma**, E.A. Olevsky, and M.A. Meyers, *Synthesis of dense TiC-Ti based cermets via self-propagating high temperature synthesis and quasi-isostatic pressing*, Proc. 36th International SAMPE Technical Conference (2004).
* X. Wang, **J. Ma**, A. Maximenko, E.A. Olevsky, M. B. Stern, and B. M. Guenin, *Preliminary study on synthesis of composites by electrophoretic deposition and microwave sintering*, Proc. Annual IMAPS Conf., Long Beach, CA (2004).
* **J. Ma**, E. Olevsky, and M. Meyers, *Modeling of Densification of Cermet Composites,* 16th Annual CSU Student Research Competition, Long Beach, CA, May, (2002).

***GRANTS***

* **J. Ma (PI)**, M. Saadeh (Co-PI), L. Ho-hoon (Co-PI), *Development of an Engineering Design, Analysis, and Prototyping Laboratory*, Louisiana Board of Regents ($53,500) and Southeastern Louisiana University ($17,000). Total **$70,500** (2015)
* V. Sebastian (PI), **J. Ma (Co-PI)**, *Tapping into a Well of Potential,* American Association of Drilling Engineers. **$25,000** (2014)
* M. Saadeh (PI), **J. Ma (Co-PI)**, *Automated Rod Singulation Station*, Louisiana Board of Regents ($11,850) and Laitram LLC. ($9,736). Total **$21,586** (2014)
* **J. Ma (PI)**, *Expanding Computational Power of the COMSOL Software Package by Acquiring Computational Fluid Dynamics (CFD) Module,* Office of Technology, Southeastern Louisiana University. **$4,495** (2013)
* **J. Ma (PI)**, *Microwave and Spark Plasma Sintering (SPS): recent experimental development, modeling and simulation using COMSOL Multiphysics,* International Week, Pole University France. **$3,000** (2013)
* **J. Ma (PI)**, *Acquisition of the SolidWorks 3D CAD Software,* Center for Faculty Excellence of Southeastern Louisiana University. **$1,000** (2012)
* **J. Ma (PI)**, *Biomass based experimental Bio-Ethanol production plant,* Office of Technology of Southeastern Louisiana University. **$5,000** (2011)
* **J. Ma (PI)**, *Evaluation of the Performance of a Vacuumed Tube Solar Water Heater*, Office of Technology of Southeastern Louisiana University. $**4,730** (2010)
* N. Huy, D. Joshua, D. Aaron, R. Thomas, C. Bradley, **J. Ma (Faculty Advisor)**, *Solar Water Heating System Analog-to-Digital Signal Converter,* STAR Program of the College of Science and Technology, Southeastern Louisiana University. **$1,497.94** (2009)
* P. Derek, F. Jameson, **J. Ma (Faculty Advisor)**, *Mini Baja Car Project,* STAR Program of the College of Science and Technology, Southeastern Louisiana University. **$2,145** (2009)
* **J. Ma (PI)**, *Numerical Computing and Graphics Power for the Engineering Technology Bachelors Degree Program*, Office of Technology of Southeastern Louisiana University. $**15,348** (2008)
* **J. Ma (PI)**, *Design and Fabrication of Miniature Lightweight Bridge*, Office of Technology of Southeastern Louisiana University. $**4,989** (2008)

***PROFESSIONAL AFFILIATIONS***

* The American Society of Mechanical Engineers (ASME)
* Materials Research Society (MRS)
* International Microelectronics and Packaging Society (IMAPS)