

TIEN-CHIEN JEN

Tel: 414-336-0378

Email: jent@uwm.edu

Education

- Jan. 1988 – March 1993 Ph.D., Mechanical and Aerospace Engineering, University of California, Los Angeles
Dissertation Title: Thermal Aspects of Grinding: Heat Transfer to Workpiece, Wheel, and Fluid
Thesis Advisor: A. S. Lavine
- Sept. 1985 – June 1987 M.S., Power Mechanical Engineering, National Tsing-Hua University, Hsinchu, Taiwan
Thesis Title: Convective Heat Transfer in Isothermal Rotating Ducts
Advisor: G. J. Hwang
- Sept. 1978 – June 1982 B.S., Naval Architecture and Marine Engineering, National Cheng-Kung University, Tainan, Taiwan

Positions Held

- May 2013-May 2014 Dean, College of Engineering, UAA
- May 2013- present Professor, Mechanical Engineering Department, UAA
- August 2013-present Adjunct Professor, University of Wisconsin, Milwaukee
- Oct. 2010 – Sep 2012 Interim Dean, College of Engineering and Applied Science, UWM
- July 2008 – May 2013 Professor, University of Wisconsin, Milwaukee
- July 2005 – June 2010 Chairman, Mechanical Engineering Department
- Aug. 2001 – June 2008 Associate Professor, University of Wisconsin, Milwaukee
- Aug. 1997 – July 2001 Assistant Professor, University of Wisconsin, Milwaukee
- Aug. 1996 – Aug. 1997 Visiting Assistant Professor, Oakland University, Rochester, Michigan
- April 1993 – July 1996 Assistant Research Engineer, General Motors and Mechanical and Aerospace Engineering, University of California, Los Angeles
- Jan. 1988 – March 1993 Research Assistant, University of California, Los Angeles
- Sept. 1985 – June 1987 Research Assistant, National Tsing-Hua University, Hsin-chu, Taiwan

Special Honors and Awards

- Elected to the status of *American Society of Mechanical Engineer Fellow* in recognizing the contribution to Mechanical Engineering, October 2011
- Appointed as *Guest Professor of Chongqing University, China*, in recognition of significant research achievement, October 2009
- Appointed as *Guest Professor of Anhui Agriculture University, China*, in recognition of significant research achievement, October 2009
- Appointed as *Guest Professor of Shangdong University, China*, in recognition of significant research achievement, October 2010
- *CEAS Million Dollars Research Funding Club*, in recognition of significant funding received, September 2008
- *Graduate School/UWM Foundation Outstanding Research Award*, in recognition of Outstanding and Creative Activity, November 2000
- *NSF GOALI Award*, the first award of its kind ever awarded to UWM by NSF, 1999 – 2006
- *Outstanding Research Award, CEAS, UWM, 2001*
- *SME Research Initiation Award*, SME Education Foundation, 1998 – 1999
- *SME Research Initiation Award*, SME Education Foundation, 1997 – 1998
- *Best Paper Award*, CIRP Annals, titled “Thermal Aspects of Grinding with CBN Wheels,” *CIRP Annals*, Vol. 38, No. 1, pp.557 – 560
- Listed in *Marquis Who’s Who in Science and Engineering* (1994 – to date)
- Listed in *Marquis Who’s Who in the World* (1994 – to date)
- Listed in *Marquis Who’s Who in America* (1995 – to date)
- Listed in *Lexington Who’s Who* (1999 – to date)

Administrative Achievements

Academic Planning and Organization

UWM

- Led College of Engineering and Applied Science (CEAS) in initiating and developing a five-year (2012 – 2017) strategic plan for research, education and services. The final draft of Strategic Plan was approved on April 27, 2012.
- Led the ABET accreditation for Mechanical Engineering Department as Chairperson and addressed all the concerns and weaknesses of the department with regards to ABET accreditation as interim Dean. All units in the College of Engineering and Applied Science have been successfully accredited by ABET.
- Led the development of the on-line programs for CEAS. The first on-line course was launched in spring 2012. Three more on-line courses will be rolling out on Fall 2012. The plan is to roll-out two new courses every semester.
- Led the development of Bio-medical Engineering Masters Program. The program was approved by the campus in Fall 2011 and the program was launched Fall 2012.
- Led the discussion with regards to the development of Bio-medical Ph.D. program and Bio-medical Engineering Department with Medical College of Wisconsin.
- Led the development of the CEAS BS/MS dual-degree program. This program has successfully retained many of our talented students.

UAA

- Led College of Engineering (CoEng) in developing a six-year (2014-2020) strategic plan for research, teaching and services. The final draft of Strategic Plan will be approved in the College of Engineering faculty meeting in August 2014.
- Led the campaign to urge Governor Parnell and legislature to support the second portion of the finance in the amount of \$45.6 million for the Phase I of the new Engineering and Industry Building. Both Senate and House finance committees support this funding and has now been messaged to Governor Parnell for his final approval. Governor Parnell has 30 days to sign the bill into the law.
- Led the name change of the college. The name of the college changed from “School of the Engineering” to “College of Engineering” to recognize the significant growth of the college.
- Worked closely with the Associate Dean of Academic Affairs and Department Chairpersons to ensure the ABET reports addressed all weaknesses and concerns identified during the visit. All units have been successfully accredited by ABET.
- Launched multiple MS level courses in the areas of Civil Engineering, Arctic Engineering and Engineering Science and Project Management. With an increase in

enrollment and a strong reputation, this MS online program is currently **ranked 32th on the Best Graduate Engineering Online Program from the US News and World Report.**

- Assisted the development of Mechanical Engineering MS degree program. The program was successfully launched in Spring 2014.
- Led the development of the Computer Science and System Engineering Department MS degree program. It is anticipated the program could be launched in Fall 2014.
- Managed budget effectively. College of Engineering is among the very few of the major campus units had a surplus in 2013-2014.
- **College of Engineering is the *only* major campus unit has student enrollment (+9%) and credit hours (+7.4%) increases in Spring 2014. This increases revenue over \$150k.**

Establishing Partnerships with Colleges and Industry

UWM

- Initiated the development of two possible NSF Industry University Collaborative Research Centers (IUCRC) in the areas of Energy Storage Materials and Metal Casting.
- Assisted on the development and establishment of the Johnson Control Partnership in Energy Storage research.
- Orchestrated the joint hire with the Lubar School of Business in the areas of Technology Entrepreneurship and Supply Chain.
- Orchestrated the joint appointment with the School of Freshwater in Sensor Technology.
- Orchestrated the joint hire with the Medical College of Wisconsin in the area of Image Reconstruction.
- Led discussions on the creation of a new Image Reconstruction Center.
- Orchestrated the joint hire with UW – Madison of the Johnson Control Endowed Chair (\$2.5 million) in the area of Energy Storage.

UAA

- Initiated the development of a possible NSF Industry University Cooperative Research Centers (IUCRC) in the areas of Arctic Engineering. This center will work with all the oil and gas companies, construction firms and transportation companies. This center has potential to bring in over **multiple million dollars research and training funding** to the university.

- Initiated the development of a possible DOE Energy Assessment center. This center will work with local gas and oil companies as well as all the native companies. If established, this is a **\$1.5 million dollar center**.
- Led discussions on creating a minor in Process Engineering, Chemical Engineering, and Petroleum Engineering curriculum in College of Engineering. This can create many job opportunities for CoEng students working in Oil and Gas industry.
- Working with Siemens and Honeywell to develop “Engineering on Display” for the new Engineering and Industry Building. This is a concept to make the new Engineering and Industry Building as a giant lab to test seismic motion of the building by implementing numerous sensors and transducers. With advanced motion software, the real time motion can be realized on the large flat screen panel shown in multiple locations in the building. This system is worth **\$300K**.

Establishing International Partnerships

UWM

- Assist the development of CERNET program to recruit students from China. This is a very aggressive program to actively recruit mostly undergraduate fee-paying students from China. It is anticipated that more than 1,000 students will be recruited from China in 2015. This potentially could bring in revenue from tuition more than **\$20 million**.
- Established the MS dual-degree program with Feng-Chia University and Chung-Yuan Christian University in Taiwan, and Chongqing University, Shandong University and Harbin Engineering University in China.
- Established a joint Institute with Chongqing University of China in the area of Energy and Environment.
- Established the staff-training program with the Ministry of Science and Technology (MoST) of China.

UAA

- Initiated the establishment of a possible MOU with Beijing University of Chemical Technology. This collaboration includes 2+2 and 2+3 program, faculty and student exchange, and training program. This has potential to bring in **over \$1 million revenue each year** to the university.
- Initiated the discussion of a possible MOU with Wuhan University of Technology, and Wuhan Textile University. Similarly, if successful, it can bring in **more than \$1 million in revenue each year**.
- Visited Beijing University of Technology (BUT). An effort is delivered to revitalize the existing MOU by start recruiting the students from BUT.

Research Development

UWM

- Introduced the new incentive for course reduction(s) for faculty members to enhance their research productivity. This incentive has led to a significant increase in the number of Research Assistants. This incentive has significantly increased research productivity and the total number of graduate students, which could dramatically impact college ranking.
- Initiated discussions with several key local industries and institutions to enhance research collaborations. Examples include North Carolina A&T University, University of Wisconsin – Madison, Medical College of Wisconsin, GE Global Research Center, Caterpillar, Johnson Control and GE Healthcare.
- Provided financial support for faculty members to interact with various funding agency program directors in pursuit of possible funding opportunities.
- Provided financial support for undergraduate research (\$100k each year). This is a strong tool to encourage undergraduate students participate in faculty research, and ultimately retain talented undergraduate students to study our graduate program.
- Assisted with establishment of the Johnson Control Battery Research Laboratories, including a Material Characterization Lab and a Dry Room (\$2.5 million).
- Engaged with the research group within the Power Solution Division by participating in nearly every weekly technical meeting held at the Lydell Research Facility. Through ongoing discussions and interaction with researchers at the facility, I was able to identify their needs and successfully foster collaborations between the Power Solutions Division and the researchers in CEAS. The total research funding for researchers in CEAS funded through Johnson Control is well over \$1 million.

UAA

- Initiated discussions with several key local industries and institutions to enhance research collaborations. Examples include University of Alaska, Fairbanks, University of Wisconsin – Madison, Oregon State University, Washington State University, Honeywell, Siemens, BP, CH2MHILL, and ConocoPhillips.
- Recruited five top-notch faculty in the areas of Mechanical Engineering (2), Computer Science and System Engineering (2), and Electrical Engineering (1).
- Provided start-up funds for incoming junior faculty and funds for faculty with which to meet federal program directors and attend grant-writing workshops.
- Initiated the development of a possible NSF Industry University Cooperative Research Centers (IUCRC) in the areas of Arctic Engineering. This center will work with all the oil and gas companies, construction firms and transportation companies.
- Initiated the development of a possible DOE Energy Assessment center. This center will work with local gas and oil companies as well as all the native companies.

- **The research expenditure increased over 45% (from \$850k to \$1.65 million) , and proposals submission increased over 65% since last year.**

Fundraising

At UWM

- Work with Development Office to strategize fundraising priorities for CEAS.
- Secured a major \$1 million endowment for an Engineering Excellence Fellowship, and initiated a trip to Seattle with the University Chancellor to meet with a potential major donor to CEAS and University of Wisconsin at Milwaukee (UWM).
- Visited companies, such as Caterpillar, Eaton, Johnson Control, GE Healthcare, etc., to solicit fellowships, scholarships, research projects, and co-op opportunities.
- Prepared and presented several proposals to donors for endowed research thrusts.
- Total fund raised in two year as Interim Dean is over \$4 million.

At UAA

- Worked with College of Engineering Advancement Office to launch multiple initiatives for fund raising.
- Launched the first recruitment and retention scholarship for UAA-Dean's Engineering Excellence Scholarship (**fund raised over \$150k in less than 6 months** with total over \$200k so far)—awarded three talented Alaska high school students this year (\$12,000 total each student for 4 years starting from freshman year all the way to senior).
- Launched the naming initiative campaign for the labs of the new Engineering and Industry Engineering Building. Working with both campuses (UAA and UAF) to seek the naming right for this new Engineering and Industry Building with BP and/or ConocoPhillips, the targeted amount of this naming right for 10 years is **\$15 million**.
- Visited companies, including BP, ConocoPhillips, Shell, Siemens, Honeywell, CH2MHILL, in order to solicit internships, research grants, capstone design project, scholarships and fellowships.
- Met with alumni and donors to cultivate and solicit funds.
- Total fundraised as Dean this year is over **\$400k**.
- Many seeds have been planned, the total proposals for funding is over **\$750k**.

Research

Research Grants and Contracts

- Co-Principal Investigator, "Effect of Heating/Cooling Cycles on the Thermomechanical Performance of Energy Piles" National Science Foundation, (CMMI 1335395), 2013-2016, **\$361,454**
- Co-Principal Investigator, "Improving Sustainability of Atomic Layer Deposition: a Hierarchical Systems Approach," National Science Foundation, (CMMI 1200940), 2012-2015, **\$457,900**
- Principal Investigator, "Laser-Assisted Cold Gas Dynamic Spraying for Energy Manufacturing," UWM – UW-Madison Intra-Campus Grant, 2010-2011, **\$50,000**
- Principal Investigator, "Laser-Assisted Cold Gas Dynamic Sprayed Graphite Coated Bipolar Plate for PEM Fuel Cell," Rockwell Catalyst Grant, 2011-2012, **\$60,000**
- Principal Investigator, "A Feasibility Study on Surface Coating on Till-gate Surface for Agriculture Applications," CNH grant, 2011-2012, **\$48,835**
- Co-Principal Investigator, "Sustainable Development of Atomic-scale Nano-coating Technology," Research Growth Initiative, (grant award number 101X212), 2011-2012, **\$161,584**
- Co-Principal Investigator, "Master Program Development," Department of Energy, (award number 144-PRJ45LS), 2010-2012, **\$201,101**
- Co-Principal Investigator, "High-Performance Microcellular Components Made of Sustainable, Bio-based Polymer Composites and Produced via an Environmentally Benign Injection-Molding Process," EPA, (EPA grant award number RD 833355), 2007-2011, **\$338,401**
- Principal Investigator, "A Feasibility Study on Metalworking Fluid and Solid Waste Elimination for Environmentally Benign Machining Processes," EPA, (EPA grant award number RD833357), 2007-2011, **\$349,978**
- Principal Investigator, "Analytical Studies of Drill Temperatures with Heat Pipe Cooling: A Novel Approach," National Science Foundation GOALI (Grant Opportunity for Academic Liaison with Industry) Program, (DMII 9908324), 1999-2006, **\$439,992**
- Principal Investigator, "SGER/GOALI: Electrostatic-force-assisted Cold Gas Dynamic Spray of Nanoparticles: A New Low Temperature Process for Producing Nanostructured Coatings," National Science Foundation – CMMI program, (NSF award number 0739503), 2007-2008, **\$51,023**
- Principal Investigator, "Electrostatic-force-assisted Cold Gas Dynamic Spray of Nanoparticles: A New Low Temperature Process," Research Growth Initiative Grant, 2007-2008, **\$136,800**

- Principal Investigator, “Establishment of a Mechanical Engineering Laboratory,” GE Healthcare Technologies, equipment for a laboratory to be used for research and instruction, 2007, **\$100,000**
- Principal Investigator, “Electrostatic-force-assisted Cold Gas Dynamic Spray of Nanoparticles: A New Low Temperature Process,” UW Systems Applied Research Grant, 2006-2007, **\$46,548**
- Principal Investigator, “Analytical and Numerical Studies of Drill Temperatures with Heat Pipe Cooling: A Novel Approach,” Lamb Technicon Machining Systems, 2002-2004, **\$15,000**
- Principal Investigator, “A Feasibility Study on Solid Waste Elimination for Environmentally Benign Machining Processes,” UW System Solid Waste Research Program, 2005-2006, **\$30,000**
- Co-Principal Investigator, “Environmentally Benign (Internal) Cooling of End Mills,” UW System Applied Research Grant, 2005-2006, **\$47,688** (P.I. Frank Pfefferkorn, UW-Madison)
- Co-Principal Investigator, “Developing an On-chip Magnetic-Based Biosensor for Real-time and Remote Detection of Biological Threat Agents in Drinking Water,” 2003-2004, **\$42,500** (P.I. Jin Li, Civil Engineering, UWM)
- Principal Investigator, “Developing Predicted Thermal Optimization Tools for Laser-Assisted Manufacturing,” 2001-2002, UW System Applied Research Grant, **\$48,056**
- Principal Investigator, “Analytical Studies of Drill Temperatures with Heat Pipe Cooling: A Novel Approach,” 1999-2000, Lamb Technicon Machining Systems, **\$13,477**
- Principal Investigator, “Thermal Management in High Speed Machining,” *UW System Applied Research Grant*, 1998-1999, **\$40,349**
- Principal Investigator, “Analytical Studies in Drill Temperatures with Heat Pipe Cooling,” 1998-1999, SME Research Initiation Award, **\$10,000**
- Principal Investigator, “Transient Tool Temperatures Prediction in Milling Process,” 1997-1998, SME Research Initiation Award, **\$10,000**
- Principal Investigator, “Enhancement of Transient Tool Temperature Prediction in Turning and Milling Operations,” 1997-1998, GM R&D Center, **\$10,000**
- Principal Investigator, *SME Education Foundation Award*, 1997-1998, **\$72,180**. This grant was used for curriculum developments, machine tool request (with 50% matching) and purchase of software at Oakland University. This amount included Research Initiation Award.
- Co-Principal Investigator, *SME Education Foundation Award*, 1998-1999, **\$11,200** (with Hamid Seifoddini and Robert Borchelt, IME Department, UWM). This grant was made by the SME and included Research Initiation Award; it was used for Dr. Jen's travel and conference attendance.

- Principal Investigator, “Establishment of a Thermal Engineering Technology Laboratory for CEAS Undergraduates and Milwaukee Public School,” 1998, Lamb Technicon Machining Systems, perishable cutting tools, 1998, **\$25,000**

Publications

Professor Jen has written a total of 146 peer-reviewed papers including 61 peer-reviewed journal papers, published in many prestigious journals including *International Journal of Heat and Mass Transfer*, *ASME Journal of Heat Transfer*, *ASME Journal of Mechanical Design* and *ASME Journal of Manufacturing Science and Engineering*. He also has written five chapter papers (shown below) including a chapter in *Numerical Simulation Proton Exchange Membrane Fuel Cell*, published by WIT Press, and another chapter in *Application of Lattice Boltzmann Method in Fluid Flow and Heat Transfer in Computational Fluid Dynamics – Technology and Application*, and more.

Book Chapters

- **Jen, T.C.**, Yan, T., and Chen, Q., 2005, “Numerical Simulation Proton Exchange Membrane Fuel Cell,” *Transport Phenomena in Fuel Cell*, WIT Press, Ashurst Lodge, Ashurst, Southampton SO40 7AA, UK
- Liao, Q., and **Jen, T.C.**, 2011, “Application of Lattice Boltzmann Method in Fluid Flow and Heat Transfer,” *Computational Fluid Dynamics-Technology and Applications*, Chapter 2, pp. 29-68, Intech publication, July 2011
- Reeves, C.J., Menezes, P.L., Lovell, M.R., **Jen, T.C.**, 2013, “Macroscale Applications in Tribology,” *Tribologists for Scientists and Engineers*, Springer.
- Reeves, C.J., Menezes, P.L., Lovell, M.R., **Jen, T.C.**, 2013, “Microscale Applications in Tribology,” *Tribologists for Scientists and Engineers*, Springer.
- Reeves, C.J., Menezes, P.L., Lovell, M.R., **Jen, T.C.**, 2013, “Solid Lubricants,” *Tribologists for Scientists and Engineers*, Springer.

Scholarly Publications in Refereed Journals

- Shaeri, R.M., and **Jen, T.C.**, Yuan, C., 2014, “Improving Atomic Layer Deposition Process through Reactor Scale Simulation,” accepted for publication in *International Journal of Heat and Mass Transfer*.
- Shaeri, R.M., and **Jen, T.C.**, Yuan, C., 2014, “Reactor Scale Simulation of an Atomic Layer Deposition Process,” accepted for publication in *Chemical Engineering Research and Design*.

- Pan, D.Q., Li, T., **Jen, T.C.**, Yuan, C.. 2014 “Numerical Modeling of Carrier Gas Flow in Atomic Layer Deposition (ALD) Process: a Comparative Study of Lattice Boltzmann Models”, *Journal of Vacuum Science and Technology A*, V. 32, issue 1, 2014, 01A110.
- Chao, C.H. and **Jen, T.C.**, 2013, “Humidification and Heat Controls of Cathode Air for a PEM Fuel Cell Stack” *International Journal of Heat and Mass Transfer*, Vol. 58, pp.117-124.
- Reeves, C. J., Menezes, P.L. Lovell, M. R. and **Jen, T.C.**, 2013, “The Size Effect of Boron Nitride Particles on the Tribological Performance of Biolubricants for Energy Conservation and Sustainability” *Tribology Letters*, Vol. 51, issue 3, pp. 437-452.
- Shaeri, R.M., and **Jen, T.C.**, 2012, “Turbulent Heat Transfer Analysis of a Three-Dimensional Array of Perforated Fins Due to Changes in Perforation Sizes,” *Numerical Heat Transfer Part A: Applications*, Vol. 61, Issue 11, pp. 807-822.
- Liao, Q., Zhou, C., Cui, W., and **Jen, T.C.**, 2012, “A New Correlation for Effective Borehole Thermal Resistance of Single U-tube Ground Heat Exchanger,” to appear *Numerical Heat Transfer Part A*
- Liao, Q., Zhou, C., Cui, W., and **Jen, T.C.**, 2012, “New Correlations for Thermal Resistances of Vertical Single U-tube Ground Heat Exchanger,” to appear in the *ASME Journal of Thermal Science and Engineering*
- Shaeri, R.M., and **Jen, T.C.**, 2012, “Effect of Perforation Sizes on Laminar Heat Transfer Characteristics of an Array of Perforated Fins,” to appear in *Energy Conservation and Management*
- Zhu, L. **Jen, T.C.**, Yen, Y.H., and Kong, X.L., 2012, “Feasibility and Effectiveness of Heat Pipe Cooling in End Milling Operations Thermal, Structural Static, and Dynamic Analyses: A New Approach,” to appear in *ASME Journal of Manufacturing Science and Engineering*
- Zhu, L. **Jen, T.C.**, Yin, C.-L. 2012, “Structural Design of a Silicon Six-Wafer Micro-Combustor under the Effect of Heat Transfer Boundary Condition at the Outer Walls,” to appear in *Journal of the Chinese Society of Mechanical Engineers*
- Zhu, L., **Jen, T.C.**, Yin, C.L., X. L. Kong, and Yen, Y.H. 2012, “Experimental Analysis to Investigate the Feasibility and Effectiveness in Using Heat Pipe Embedded End-mills,” to appear in *The International Journal of Advanced Manufacturing Technology*
- Zhu, L., **Jen, T.C.**, Yin, C.-L. 2011, “Numerical Investigation of the Structure of a Silicon Six-Wafer Micro-combustor under the Effect of Hydrogen/Air Ratio,” *Journal of Microsystem Technologies*, Vol. 16, No. 10, pp. 1,777-1,786
- Chen, C.N., Han, J.T., **Jen, T.C.**, Shao, L., 2011, “Dry-out CHF Correlation for R134a Flow Boiling in a Horizontal Helically-coiled Tube,” *Int. J. Heat Mass Transfer*, Vol. 54, Issue 1-3, pp.739-745
- Chen, C.N., Han, J.T., **Jen, T.C.**, Shao, L., 2011, “Experimental Study on CHF Characteristics of R134a Flow Boiling in Horizontal Helically-coiled Tubes,” *Int. J. Thermal Sciences*, Vol. 50, Issue 2, pp. 169-177

- Chen, C.N., Han, J.T., **Jen, T.C.**, Shao, L., 2011, “Thermo-chemical Characteristics of R134a Flow Boiling in Helically-coiled Tubes at Low Mass Flux and Low Pressure,” *Thermochimica Acta*, Vol. 512, Issue 1-2, pp. 163-169
- Zhu, L., **Jen, T.C.**, Yin, C.-L., 2010, “Numerical Investigation of Heat Pipe Cooling in Drilling Applications,” *Journal of Mechanical Engineering*, Vol. 61, pp. 233-254
- Shi, C., Chen, Q., **Jen, T.C.**, Yang, W., 2010, “Heat Transfer Performance of Lithium Bromide Solution and Falling Film Generator,” *International Journal of Heat and Mass Transfer*, Vol. 53, Issue 15-16, pp. 3,372-3,376
- Lin Zhu, **Tien-Chien Jen**, Chen-Long Yin, 2010, “Effect of Heat Loss through the Outer Walls on the Structure of a Micro-Combustor Device,” *ASME Journal of Mechanical Design*, Vol. 132, Issue 12, 5 pages
- Reikher, A., Gerber, H., Pillai, K. and **Jen, T.C.**, 2010, “Natural Convection – An Overlook Phenomenon of the Solidification Process,” *Die Casting Engineering*, January Issue, pp. 30-33
- Zhang, J., Ge, P. **Jen, T.C.** and Zhang, L., 2009, “Experimental and Numerical Studies of AISI1020 Steel in Grind-Hardening,” *International Journal of Heat and Mass Transfer*, Vol. 52, pp. 787-795
- Reikher, A., Gerber, H., Pillai, K. and **Jen, T.C.**, 2009, “Application of One-Dimensional Numerical Simulation to Optimize Process Parameters of a Thin-Wall Casting in High Pressure Die Casting,” *Die Casting Engineering*, May Issue, pp. 38-42
- Tan, W., **Jen, T.C.**, and Gao, M., 2009, “Medium Earth Orbit and Inclined Geosynchronous Orbit Satellite Control Strategies Optimization based on the Function Approximation Method,” *Proceedings of the Institute of Mechanical Engineers, Part G Journal of Aerospace Engineering*, Vol. 223, No. 4, pp. 475-484
- Liao, Q. and **Jen, T.C.**, 2008, “Numerical Simulation of Fluid Flow and Heat Transfer in A Curved Square Duct using Lattice Boltzmann Method,” *Numerical Heat Transfer, Part A: Applications*, Vol. 54, pp. 451-480
- **Jen, T.C.** and Nemecek, D., 2008, “Thermal Analysis of Wet-Clutch Subjected to A Constant Energy Engagement,” *International Journal of Heat and Mass Transfer*, Vol. 51, No.7-8, pp. 215-244
- Cui, W., Li, L., Xin, M., **Jen, T.C.**, Liao, Q., Chen, Q., 2008, “An Experimental Study of Flow Patterns and Pressure Drop for Flow Boiling Inside Microfinned Helically Coiled Tube,” *International Journal of Heat and Mass Transfer*, Vol. 51, No.1, pp.169-175
- **Jen, T.C.**, Tuchowski, F., and Chen, Y., 2008, “Investigation of Thermosyphon Cooling for Drilling Operation: An Experimental Study,” *International Journal of Transport Phenomena*, Vol. 10, No.1, pp. 17-36
- Yan, T.Z. and **Jen, T.C.**, 2008, “Two-Phase Flow Modeling of Liquid-Feed Direct Methanol Fuel Cell,” *International Journal of Heat and Mass Transfer*, Vol. 51, No.5-6, pp. 1,192-1,204

- Peng, L., Li, Y.R., Liu, Y.J., Imaishi, N., **Jen, T.C.**, and Chen, Q., 2007, “Bifurcation and Hysteresis of Flow Pattern Transition in A Shallow Molten Silicon Pool with Cz Configuration,” *Numerical Heat Transfer Part A*, Vol. 51, pp. 211-223
- Liao, Q., **Jen, T.C.**, Chen, Q., Li, L., and Cui, W., 2007, “Heat Transfer Performance in 3D Internally Finned Heat Pipe,” *International Journal of Heat and Mass Transfer*, Vol. 50, pp. 1231-1237
- Cui, W. Li, L., Chen, Q. and Liao, Q., **Jen, T.C.**, 2006, “Heat Transfer and Pressure Drop Experimental Correlations for Air-Water Bubbly Flow,” *International Journal of Heat and Mass Transfer*, Vol. 49, pp.4,417-4,423
- ¹Pan, L., **Jen, T.C.**, He, C., Xin, M., and Chen, Q., 2006, “Heat Transfer and Bubble Movement of Two- and One-Sided Heating Subcooled Flow Boiling in Narrow Channel,” *ASME Journal of Heat Transfer*, Vol. 128, pp.838-842
- Gutierrez, G., Cantano, J., **Jen, T.C.**, and Liao, Q., 2006, “Transient Heat Transfer Analysis on A Heat Pipe With Experimental Validation,” *International Journal of Transport Phenomena*, Vol. 8, pp.165-179
- Cui, W., Li, L., Xin, M., **Jen, T.C.**, Chen, Q., Liao, Q., 2006, ”A Heat Transfer Correlation of Flow Boiling in Micro-Finned Helically Coiled Tube,” *International Journal of Heat and Mass Transfer*, Vol. 49, pp. 2,851-2,858
- **Jen, T.C.**, Pan, L., Li, L., Chen, Q., and Cui, W., 2006, ”The acceleration of Charged Nano- Particles in Gas Stream of Supersonic De-Laval-Type Nozzle Coupled with Static Electric Field,” *Applied Thermal Engineering*, Vol. 26, pp. 613-621
- Gutierrez, J.G. and **Jen, T.C.**, 2005, “Numerical Analysis of the Vapor Flow in An Axially Rotating Heat Pipe in Drilling Processes,” *International Journal of Transport Phenomena*, Vol. 7, pp.131-150
- Li, L., Cui, W., Liao, Q., Xin, M., **Jen, T.C.** and Chen, Q., 2005, “Heat Transfer Augmentation in 3D Internally Finned and Micro-finned Helical Tube,” *International Journal of Heat and Mass Transfer*, Vol. 48, pp.1,916-1,925
- **Jen, T.C.** and Yan, T., 2005, “Developing Fluid Flow and Heat Transfer in a Channel Partially Filled with Semi-Porous Square Channel,” *International Journal of Heat and Mass Transfer*, Vol. 48, pp. 3,995-4,009
- **Jen, T.C.**, Chen, Q., Li, L., Cui, W. and Zhang, X., 2005, “Numerical Analysis on Cold Gas Dynamic Spray Coating Process with Nano- and Micro-size Particles,” *International Journal of Heat and Mass Transfer*, Vol. 48, pp. 4,384-4,396
- Gu, R. J., Shillor, R. Barber, G., and **Jen, T.C.** 2004, “Thermal Analysis of the Grinding Process,” *Mathematical and Computer Modeling*, Vol. 39/9-10, pp. 991-1,003
- **Jen, T.C.**, Eapen, S., and Gutierrez, J.G., 2003, “Nonlinear Numerical Analysis in Transient Cutting Tool Temperatures,” *ASME Journal of Manufacturing Science and Engineering*, Vol. 125, No. 1, pp. 48-56

¹ Top 10 downloaded article of August 2006 in *ASME Journal of Heat Transfer*

- **Jen, T.C.**, Gutierrez, J.G., and Eapen, S., 2003, "Prediction of Transient Cutting Tool Temperatures," *International Journal of Transport Phenomena*, Vol. 5, pp. 19-30
- **Jen, T.C.**, and Gutierrez, J.G., 2003, "Analytical Study of Heat Conduction in a Finite Region due to a Laser Heat Source," *International Journal of Transport Phenomena*, Vol. 5, pp. 203-216
- **Jen, T.C.**, Yan, T. and Chan, S-H, 2003, "Chemical Reacting Transport Phenomena in a PEM Fuel Cell," *International Journal of Heat and Mass Transfer*, Vol. 46, pp. 4,157-4,168
- **Jen, T.C.**, Eapen, S. and Hwang, G.J., 2002, "Fully Developed Laminar Fluid Flow in a Rotating Isothermal Isosceles Triangular Channel," *International Journal of Rotating Machinery*, Vol. 8, No. 1, 1-12
- **Jen, T.C.**, Gutierrez, G., Eapen S., Barber, G., Zhao, H., Szuba, S., Manjunathaiah, J., and Labataille, J., 2002, "Investigation of Heat Pipes Cooling in Drilling Applications Part I: Preliminary Numerical Analysis and Verifications," *International Journal of Machine Tool and Manufacture*, Vol. 42, No. 5, pp. 643-652
- **Jen, T.C.**, Jiao, Y., and Hwang, T., 2001, "A Parametric Study of Numerical Simulation of Solute Redistribution During Transient Liquid Phase Bonding Process," *International Journal of Rotating Machinery*, Vol. 7, No. 6, 387-396
- **Jen, T.C.**, Gutierrez, J.G., and Eapen, S., 2001, "Numerical Analysis in Interrupted Cutting Tool Temperatures," *Numerical Heat Transfer Part A: Applications*, Vol. 39, No.1, pp.1-20
- **Jen, T.C.** and Jiao, Y., 2001, "Numerical Simulation of Solute Redistribution During Transient Liquid Phase Bonding Processing for Al-Cu Alloy," *Numerical Heat Transfer Part A: Applications*, Vol. 39, No. 2, pp. 123-138
- **Jen, T.C.**, and Anagonye, A.U., 2001, "A Transient Tool Temperatures Model in Metal Cutting," *ASME Journal of Manufacturing Science and Engineering*, Vol. 123, No.1, pp. 30-37
- Gutierrez, J.G. and **Jen, T.C.**, 2000, "Numerical Simulation of Heat Conduction Subject to a Time Dependent Laser Source: the Effects of Variable Thermal Properties," *International Journal of Heat and Mass Transfer*, Vol. 43, pp. 2,177-2,192
- Stephenson, D.A., **Jen, T.C.**, and Lavine, A.S., 1997, "Cutting Tool Temperatures in Contour Turning: Transient Analysis and Experimental Verification," *ASME Journal of Manufacturing Science and Engineering (formerly Journal of Engineering for Industry)*, Vol. 119, pp. 494-501
- **Jen, T.C.**, 1996, "Laminar Forced Convection in the Entrance Region of a Semi-Porous Channel," *ASME Journal of Heat Transfer*, Vol. 118, pp. 508-510
- **Jen, T.C.**, and Lavine, A.S., 1996, "A Variable Heat Flux Model of Heat Transfer in Grinding with Boiling," *ASME Journal of Heat Transfer*, Vol. 118, pp. 463-470
- **Jen, T.C.**, and Lavine, A.S., 1995, "A Variable Heat Flux Model of Heat Transfer in Grinding: Model Development," *ASME Journal of Heat Transfer*, Vol. 117, pp. 473-478

- **Jen, T.C.**, Lavine, A.S., and Hwang, G.J., 1992, “Simultaneously Developing Laminar Convection in Rotating Isothermal Square Channels,” *International Journal of Heat and Mass Transfer*, Vol. 35, No. 1, pp. 239-254
- **Jen, T.C.**, and Lavine, A.S., 1992, “Laminar Heat Transfer and Fluid Flow in the Entrance Region of a Rotating Duct with Rectangular Cross-Section—the Effect of Aspect Ratio,” *ASME Journal of Heat Transfer*, Vol. 114, pp. 574-581
- Lavine, A.S. and **Jen, T.C.**, 1991, “Coupled Heat Transfer to Workpiece, Wheel and Fluid in Grinding, and the Occurrence of Workpiece Burn,” *International Journal of Heat and Mass Transfer*, Vol. 34, No. 4/5, pp. 983-992
- Lavine, A.S. and **Jen, T.C.**, 1991, “Thermal Aspects of Grinding: Heat Transfer to Workpiece, Wheel and Fluid,” *ASME Journal of Heat Transfer*, Vol. 113, pp. 296-303
- Hwang, G.J., and **Jen, T.C.**, 1990, “Convective Heat Transfer in Rotating Isothermal Ducts,” *International Journal of Heat and Mass Transfer*, Vol. 33, No. 9, pp. 1,817-1,828
- Lavine, A.S., Malkin, S., and **Jen, T.C.**, 1989², “Thermal Aspects of Grinding with CBN Wheels,” *CIRP Annals*, Vol. 38, No. 1, pp. 557-560

Journal Papers under Review

- Reeves, C.J., Menezes, P., **Jen, T.C.**, Lovell, M.R., 2014, "The Influence of Fatty Acids on Tribological and Thermal Properties of Natural Oils as Sustainable Biolubricants", submitted to *Langmuir*.
- Pan.D.Q., **Jen, T.C.**, Yuan, C., 2014, "Numerical Characterization of Precursor Pulsing and Purging in Atomic Layer Deposition of Al₂O₃," *Thin Solid Film*, under revision.
- Liao, Q., Li,J., and **Jen, T.C.**, 2014, “New Transient 3D Thermal Resistance-Capacitance Model for Vertical Single U-tube Ground Heat Exchanger,” submitted to *International Journal of Heat and Mass Transfer*.
- Tang, W.Y., Liu, J.F., Chen, Q., **Jen, T.C.**, and Zhang, X., 2014, “Numerical Study on the Effect of the Powder Feed Gas on the Flow Field and the Particle Impact Velocity in the Cold Spray,” submitted to *Powder Technology*
- Tang, W.Y., Chen, Q., Liu, J.F., **Jen, T.C.**, and Chen, Z., 2014, “Effects of Shock Wave on Impact Velocity of Charged Nano-particles on Substrates in Electrostatic-force Assisted Cold Spraying,” submitted to *Powder Technology*
- Chao, C.H. and **Jen, T.C.**, 2014, “Isothermal Analysis of Magnesium Hydrate Hydrolysis Reaction for Hydrogen Generation.” Submitted to *International Journal of Heat and Mass Transfer*
- Chai, W.W., Chen, Q.H., Li. L., Tan W., and **Jen T.C.**, 2014 “Heat Dissipation Analysis of High Power LED Connected to Copper Coated Heat Sink by Soldering, “Submitted to *International Journal of Heat and Mass Transfer*

Patent Pending:

2. Best paper of year of the CIRP, 1989

- Reeves, C., Diez, M., Garvey, S., **Jen, T.C.**, Menezes, P., and Lovell, M., 2012, “Environmentally-Friendly, Biodegradable Ionic Liquid Lubricants”.

Conference Proceedings and Abstracts

- Chao, C.H. and **Jen, T.C.**, 2014, “A New Hybrid Photovoltaic Cells Battery Power System with Extended Range Considered,” 20th World Hydrogen Conference 2014, June 15-20, Korea.
- Chao, C.H., **Jen, T.C.**, Ho, Y.H., 2013 “Analysis and Experiment on Dynamic Prediction in Magnesium Hydride Hydrolysis as Hydrogen Generator”, ASME International Mechanical Engineering Congress and Exposition, November 15-21, 2013, San Diego, California. IMECE 2013-62502
- Reeves, C.J., Menezes, P.L., Lovell, M.R., **Jen, T.C.**, Garvey, S.L., and Dietz, M.L., 2013, “The Tribological Performance of Bio-Based Room Temperature Ionic Liquid Lubricant: A Possible Next Step in Biolubricant Technology,” World Tribology Congress, Torino, Italy, September 8-13, 2013.
- Chao, C.H. and **Jen, T.C.**, 2012, “Transition Behavior Experiments for Hybrid Fuel Cell Battery System,” , the proceedings of 2012 IEEE International Symposium on IT in Medicine & Education (ITME 2012) August 3-5, 2012, Hokkaido, Japan.
- Reeves, C.J., Menezes, P., **Jen, T.C.**, and Lovell, M., 2012, “Evaluating the Tribological Performance of Green Liquid Lubricants and Powder Additives Based Green Liquid Lubricants, “ to be presented in the Proceedings of the STLE Meeting and Exhibition, May 6-10, 2012, St. Louis, Missouri. STLE2012-124438.
- Reeves, C.J., Garvey, S., Menezes, P., Dietz, M., **Jen, T.C.**, and Lovell, M., 2012, “Tribological Performance of Environmentally-Friendly Ionic Liquid Lubricants, “ to be presented in the International Joint Tribology Conference, October 8-10, 2012, Denver, Colorado.
- Liao, Q., Zhou, C., Cui, W., and **Jen, T.C.**, 2011, “New Correlations for Thermal Resistances of Vertical Single U-tube Ground Heat Exchanger,” ASME International Mechanical Engineering Congress and Exposition, November 11-17, 2011, Denver, Colorado. IMECE2011-62437
- Cui, W., Liao, Q., Chang, G., Peng, Q., and **Jen, T.C.**, 2011, “Measurements and Prediction of Undistributed Underground Temperature Distribution,” ASME International Mechanical Engineering Congress and Exposition, November 11-17, 2011, Denver, Colorado. IMECE2011-63311
- Cui, W., Liao, Q., Chang, G., Peng, Q., and **Jen, T.C.**, 2011, “In-situ Thermal Response Test for Ground Source Heat Pump Application,” ASME International Mechanical Engineering Congress and Exposition, November 11-17, 2011, Denver, Colorado. IMECE2011-63318
- Zhu, L., **Jen, T.C.**, Yen, Y.-H., Yin, C.-L., and Kong, X.-L., 2011, “Improved Tool Life in Heat-pipe Assisted End Milling Operation,” ASME International Mechanical Engineering Congress and Exposition, November 11-17, 2011, Denver, Colorado. IMECE2011-63578

- Chen, C.N., **Jen, T.C.**, Han, J.T., Shao, L., and Yen, Y.H., 2010, “Design and Performance of Two-Phase Flow Heat Transfer Experiment Platform Using R134a as Working Fluid,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-37147
- Zhu, L., **Jen, T.C.**, Yen, Y.H., Zhu, M., and Yin, C.L., 2010, “Numerical Simulation of Heat Pipe Cooling in End Milling Operations, Part 1: Thermal, Structural Static, and Dynamic Analyses,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-37160
- Zhang, J.H., **Jen, T.C.**, and Yen, Y.H., 2010, “FEM Analysis on Damage Layer in Wire Saw Cutting Single Crystal Silicon,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-37328
- Aidch, T., **Jen, T.C.** and Yen, Y.H., 2010, “Mathematical Model of the Cooling of a Plastic, Thermoformed Part,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-37333
- **Jen, T.C.**, Lin, H, and Yen, Y.H., 2010, “The Effects of Optimized Nozzle-Substrate Distance on Cold Gas Dynamic Spray (CGDS) Process,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-37536
- **Jen, T.C.**, Yen, Y.H., Chen, Q., and Liao Q., 2010, “Thermal Analysis of the Particle Critical Velocity on Bonding Efficiency in Cold Gas Dynamics Spraying Process,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-37723
- **Jen, T.C.**, Lin, H, and Yen, Y.H., 2010, “A Study of Convective Heat Transfer and Pressure Drop Phenomena in Curved Microchannels,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-38156
- Cui, W., Chen, Q., and **Jen, T.C.**, 2010, “Energy Efficiency of a Quasi CPC Concentrating Solar PV/T System,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-38341
- Cui, W., Liao, Q., and **Jen, T.C.**, 2010, “An Improved Algorithm of Steady-State Simulation for Heat Pump Evaporator,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-38769
- Reikher, A., and **Jen, T.C.**, 2010, “Simulation of Welding of Aluminum using High Energy Laser Beam,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2010, Vancouver, British Columbia, Canada. IMECE2010-39787

- Zhu, L., **Jen, T.C.**, Yin, C.L., 2009, “Investigation of Heat Pipe Cooling in Drilling Applications, Part 2: Thermal, Structural Static, and Dynamic Analyses,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2009, Lake Buena Vista, Florida. IMECE2009-10314
- Zhu, L., **Jen, T.C.**, Y. C.L., 2009, “Structural Design of a Six-Wafer Combustor with Flame Burning in a Recirculation Jacket under the Effect,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2009, Lake Buena Vista, Florida. IMECE2009-10315
- **Jen, T.C.**, Yen, Y., Chen, Q. and Liao, Q., 2009, “Dynamic Characteristics of Gas-Particle Two-Phase Flow in Cold Gas Dynamic Spray Due to Varying Nozzle-Substrate Distance,” ASME International Mechanical Engineering Congress and Exposition, November 13-19, 2009, Lake Buena Vista, Florida. IMECE2009-10501
- Liao, Q., and **Jen, T.C.**, 2008, “A New Pressure Boundary Condition of Lattice Boltzmann Method (LBM) for Fully Developed Pressure-Driven Periodic Incompressible Fluid Flow,” ASME International Mechanical Engineering Congress and Exposition, October 31-November 6, 2008, Boston, Massachusetts. IMECE2008-66221
- Tan, W., **Jen, T.C.**, and Wang, X., 2008, “Control Strategy Study of Co-located GEO Satellites Based-on Eccentricity Vector Separation,” ASME International Mechanical Engineering Congress and Exposition, October 31-November 6, 2008, Boston, Massachusetts. IMECE2008-68437
- Tan, W., and **Jen, T.C.**, 2008, “The New Eccentricity Vector Control Method for Two Co-located GEO Satellites,” 46th AIAA Aerospace Sciences Meeting and Exhibit, January 7-10, 2008, Reno, Nevada. (paper number AIAA-2008-1173)
- Tan, W., and **Jen, T.C.**, 2008, “The Function Approximation Method Applied in MEO and IGSO Satellites Optimal Maneuver,” 46th AIAA Aerospace Sciences Meeting and Exhibit, January 7-10, 2008, Reno, Nevada. (paper number AIAA-2008-1181)
- Ge, P., Zhang, J., Zhang, L., and **Jen, T.C.**, 2008, “Experimental Study and Finite Element Simulation on Grind-Hardening,” North American Manufacturing Research Conference (NAMRC 36), May 20-23, 2008
- Zhang, J., Ge, P., Zhang, L., and **Jen, T.C.**, 2008, “Study on the Coolant Supply Method in Grind-hardening,” North American Manufacturing Research Conference (NAMRC 36), May 20-23, 2008
- Liao, Q., **Jen, T.C.**, Chen, Q., and Li, L., 2007, “Numerical Simulation of Fluid Flow and Heat Transfer in the Curved Square Duct by Using Lattice Boltzmann Method,” International Mechanical Engineering Congress and Exposition, November 2007, Seattle, Washington. IMECE2007-43912
- Chen, Q., Liao, Q., **Jen, T.C.**, Cui, W., and Li, L., 2007, “The Investigation of High Pressure and Temperature Miniature Gas Heater of Cold Gas Dynamic Spray,” International Mechanical Engineering Congress and Exposition, November 2007, Seattle, Washington. IMECE2007-44073

- **Jen, T.C.** and Yan, T.Z., 2006, “Numerical Simulation and Modeling of Liquid Feed Methanol Fuel Cell,” the 4th International ASME conference on Fuel Cell Science, Engineering and Technology, June 19-21, 2006, Irvine, California. Fucell2006-97088
- Pan, L., **Jen, T.C.**, Chen, Q., Li, Y., and Liu, J., 2006, “Numerical Analysis of Marangoni Convection in Liquid Bridge with Liquid Encapsulation: Effect of Temperature Coefficient of Tension,” ASME International Mechanical Engineering Congress and Exposition, November 5-10, 2006, Chicago, Illinois. IMECE2006-14541
- Li, L., Cui, W., **Jen, T.C.**, Chen, Q., and Liao, Q., 2006, “Numerical Simulation of Gas-Liquid Two Phase Flow in the Annual Gap Scrubber,” ASME International Mechanical Engineering Congress and Exposition, November 5-10, 2006, Chicago, Illinois. IMECE2006-14554
- Liao, Q., **Jen, T.C.**, Chen, Q., Cui, W., Li, L., 2006, “Numerical Simulation with Lattice-Boltzmann Method (LBM) in the Curved Square Duct,” ASME International Mechanical Engineering Congress and Exposition, November 5-10, 2006, Chicago, Illinois. IMECE2006-14568
- Cui, W., Li, L., **Jen, T.C.**, Chen, Q., Liao, Q., and Xin, M., 2006, “Flow Patterns and Pressure Drop for Flow Boiling inside Microfinned Helically Coiled Tube,” ASME International Mechanical Engineering Congress and Exposition, November 5-10, 2006, Chicago, Illinois. IMECE2006-14573
- Li, L., Cui, W., Chen, Q., **Jen, T.C.**, and Liao, Q., 2005, “The Effects of Distance Between Nozzle and Substrate on Cold Gas Dynamic Spray Process,” ASME Summer Heat Transfer Conference, July 17-25, 2005, San Francisco, California. HT2005-72372
- **Jen, T.C.** and Liao, Q., 2005, “Thermal Performance of Heat Pipe Drill: A New Simulation Model for Heat Pipe,” ASME Summer Heat Transfer Conference, July 17-25, 2005, San Francisco, California. HT2005-72425
- Cui, W., Li, L., Chen, Q., Liao, Q. and **Jen, T.C.**, 2005, “Heat Transfer and Pressure Drop Experimentations for Air-Water Bubbly Flow,” ASME Summer Heat Transfer Conference, July 17-25, 2005, San Francisco, California. HT 2005-72843
- Li, L., Cui, W., Chen, Q., Liao, Q. and **Jen, T.C.**, 2005, “Coupled Conduction-Convective Heat Transfer in the Louvered Fin Heat Exchanger,” ASME Summer Heat Transfer Conference, July 17-25, 2005, San Francisco, California. HT2005-72840
- Pan, L., Liang, X., Xin, M., **Jen, T.C.**, and Chen, Q., 2005, “Two-Phase Concurrent Separated Model for Boiling Heat Transfer in Narrow Vertical Rectangular Space,” ASME Summer Heat Transfer Conference, July 17-25, 2005, San Francisco, California. HT2005-72859
- Pan, L., He, H., Xin, M., **Jen, T.C.**, and Chen, Q., 2005, “Bubbles Coalescence and Condensation of Subcooled Flow Boiling in Vertical Narrow Channels,” ASME Summer Heat Transfer Conference, July 17-25, 2005, San Francisco, California. HT2005-72860
- Pan, L., He, C., Xin, M., **Jen, T.C.**, and Chen, Q., 2005, “Heat Transfer and Bubble Movement of Double- and Single-side Heating Subcooled Flow Boiling Narrow

Channels,” ASME Summer Heat Transfer Conference, July 17-25, 2005, San Francisco, California. HT2005-72861

- Zhang Y. Li, L., Cui, W., **Jen, T.C.**, Chen, Q., Liao, Q., 2005, “Numerical Simulation of Fluid Flow and Heat Transfer in Micro-Nozzle,” International Mechanical Engineering Congress and Exposition, November 5-11, 2005, Orlando Florida. IMECE2005-82464
- Cui, W., Li, L., **Jen, T.C.**, Chen, Q., Liao, Q., Xin, M., 2005, “A Heat Transfer Correlation of Flow Boiling in Micro-Finned Helically Coiled Tube,” International Mechanical Engineering Congress and Exposition, November 5-11, 2005, Orlando Florida. IMECE2005-82468
- Li, L., Cui, W., **Jen, T.C.**, Chen, Q., 2005, “Numerical Modeling of the Coupled Convection Heat Transfer in the Cylinder Block and the Water Jacket of Engine,” International Mechanical Engineering Congress and Exposition, November 5-11, 2005, Orlando, Florida. IMECE2005-82466
- Li, L., Cui, W., **Jen, T.C.**, Chen, Q., Liao, Q., 2005, “Numerical Simulation of Steam Reforming of Methanol in Micro-Channel Reactor,” International Mechanical Engineering Congress and Exposition, November 5-11, 2005, Orlando Florida. IMECE2005-82467
- **Jen, T.C.**, Tuchowski, F., and T.-M. Chen, 2005, “Investigation of Thermosyphon Cooling for Drilling Operation: An Experimental Study,” International Mechanical Engineering Congress and Exposition, November 5-11, 2005, Orlando, Florida. IMECE2005-82761
- **Jen, T.C.** and Chen, Y-M, 2004, “Performance of an Axially Rotating Heat Pipe in Drilling Application,” NSF Design, Service and Manufacturing Grantees and Research Conference, January 5-8, 2004, Dallas, Texas
- **Jen, T.C.**, Tuchowski, F., and Chen, Y-M, 2004, “Use of Thermosyphon to Cool the Cutting Tip of a Drill,” ASME Heat Transfer/Fluids Engineering Conference, July 11-15, 2004, Charlotte, North Carolina. HT-FED2004-56349
- Li, L., Chen, Q. and **Jen, T.C.**, 2004, “Experiments on Heat Transfer Enhancement in 3D Inner Finned Helical Pipe,” ASME Heat Transfer/Fluids Engineering Conference, July 11-15, 2004, Charlotte, North Carolina. HT-FED2004-56430
- **Jen, T.C.**, Chen, Y-M, and Tuchowski, F., 2004, “Experimental and Numerical Studies of Laser-Assisted Drilling Processes,” ASME Heat Transfer/Fluids Engineering Conference, July 11-15, 2004, Charlotte, North Carolina. HT-FED2004-56455
- **Jen, T.C.**, and Chen, Q., 2004, “Deposition Characteristics of Graphite Coating in Cold Gas Dynamic Spray (CGDS) Process,” International Mechanical Engineering Congress and Exposition, November 2004, Anaheim, California. IMECE2004-60723
- **Jen, T.C.**, Chen, Y-M, and Tuchowski, F., 2004, “Investigation of Heat Pipe Drilling Application International Mechanical Engineering Congress and Exposition, November 2004, Anaheim, California. IMECE2004-60725

- **Jen, T.C.**, Yan, T., and Chan, S.H., 2003, “Developing Fluid Flow and Heat Transfer in a Semi-Porous Square Channel,” National Heat Transfer Conference, July 21-23, 2003, Las Vegas, Nevada. HT2003-47090
- **Jen, T.C.**, Chen Y-M., and Guitierrez, J.G., 2003, “Thermal Performance of Heat Pipe Drill: Experimental Study,” National Heat Transfer Conference, July 21-23, 2003, Las Vegas, Nevada. HT2003-47096
- **Jen, T.C.**, and Jadhav, R., 2003, “Thermal Management of a Heat Pipe Drill: A FEM Study,” National Heat Transfer Conference, July 21-23, 2003, Las Vegas, Nevada. HT2003-47145
- **Jen, T.C.**, Jadhav, R., Chen, Y-M, and Omari, S., 2003, “Thermal Management in Laser-Assisted Machining – A Preliminary Study,” International Mechanical Engineering and Congress Exposition, November 16-21, 2003, Washington, D.C. IMECE2003-42531
- **Jen, T.C.**, Li, L., Chen, Q., Cui, W., and Zhang, X., 2003, “The Acceleration of Micro- and Nano-Particles in Supersonic De-Laval-Type Nozzle,” International Mechanical Engineering and Congress Exposition, November 16-21, 2003, Washington, D.C. IMECE2003-42583
- Gutierrez, G., **Jen, T.C.**, and Yan, T., 2003, “Numerical Analysis of the Convective Heat Transfer in a Combustor Cooling Jacket,” International Mechanical Engineering and Congress Exposition, November 16-21, 2003, Washington, D.C. IMECE2003-42912
- **Jen, T.C.**, Chan, S.H. and T.-Z. Yan, 2002, “3-D Numerical Simulation for Fuel Cell Performance,” ASME International Mechanical Engineering Congress and Exposition, November 2002, New Orleans, Louisiana. (50 % contribution)
- Gutierrez, J.G. and **Jen, T.C.**, 2002, “Performance of an Axially Rotating Heat Pipe in Drilling Applications,” ASME International Mechanical Engineering Congress and Exposition, November 2002, New Orleans, Louisiana. (50 % contribution)
- **Jen, T.C.**, and Gutierrez, G., 2002, “Experimental Investigation of Heat Pipe Drill Performance,” NSF Design, Manufacturing and Industrial Innovation conference, January 2002, Alabama
- **Jen, T.C.** and Jiao, Y., 2001, “Re-melting and Re-solidification of Substrate during Transient Liquid Phase Diffusion bonding Process for Al-Mg Alloy,” ASME National Heat Transfer Conference, June 10-12, 2001, Anaheim, California
- **Jen, T.C.**, Gutierrez, J.G., and Eapen, S., 2001, “Transient Cutting Tool Temperatures: A Parametric Study,” ASME National Heat Transfer Conference, June 10-12, 2001, Anaheim, California
- **Jen, T.C.** and Gutierrez, J.G., 2001, “Numerical Analysis of Vapor Flow in Axially Rotating Heat Pipe in Drilling Applications,” ASME National Heat Transfer Conference, June 10-12, 2001, Anaheim, California
- **Jen, T.C.**, Gutierrez, G., Eapen S., 2001, “Investigation of Heat Pipes Cooling in Drilling Applications,” NSF Design, Manufacturing and Industrial Innovation Research Conference

- **Jen, T.C.** and Nemecek, D., 2000, “Thermal Analysis of Lubricating Oil Flow Within a Wet-Disk Clutch,” ASME International Mechanical Engineering Congress and Exposition, Orlando, Florida
- **Jen, T.C.**, Gutierrez, J.G., and Eapen, S., 2000, “Non-linear Numerical Analysis in Transient Cutting Tool Temperatures,” ASME International Mechanical Engineering Congress and Exposition, Orlando, Florida
- **Jen, T.C.**, and Nemecek, D., 2000, “Thermal Analysis in Slip Engagement of Wet Disk Clutch,” National Heat Transfer Conference, August 20-22, 2000, Pittsburgh, Pennsylvania. Also published as a technical paper in *Advances in Energy Conversion and Transport Systems*, CD ROM NHTC2000-12155
- **Jen, T.C.**, and Gutierrez, J.G., 2000, “Numerical Heat Transfer Analysis in Transient Cutting Tool Temperatures,” National Heat Transfer Conference, August 20-22, 2000, Pittsburgh, Pennsylvania. Also published as a technical paper in *Transport Phenomena in Manufacturing and Materials Processing*, CD ROM NHTC2000-12275
- **Jen, T.C.**, Eapen, S. and Hwang, G.J., 2000, “Fully Developed Laminar Fluid Flow in a Rotating Isothermal Isosceles Triangular Channel,” 8th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, (ISROMAC-8), Vol. 1, pp. 604-613
- **Jen, T.C.** and Gutierrez, J.G., 1999, “Finite Element Analysis in Transient Cutting Tool Temperatures,” ASME National Heat Transfer Conference, 1999, Albuquerque, New Mexico. Also published as a technical paper in *Transport Phenomena in Manufacturing and Materials Processing*, CD ROM NHTC99-143
- **Jen, T.C.**, and Gutierrez, J.G., 1999, “Heat Conduction in a Finite Region due to a Laser Source,” ASME National Heat Transfer Conference, 1999, Albuquerque, New Mexico. Also published as a technical paper in *Laser Processing and Diagnostics for Manufacturing and Materials Processing*, CD ROM NHTC99-142
- **Jen, T.C.** and Anagonye, A.U., 1998, “An Improved Transient Model of Tool Temperatures in Metal Cutting,” ASME International Mechanical Engineering Congress and Exposition. Also published as a technical paper in *Heat Transfer in Materials Processing*, HTD-Vol. 361-4, pp. 87-95
- Stephenson, D. A., **Jen, T.C.**, and Lavine, A.S., 1995, “Cutting Tool Temperatures in Contour Turning: Transient Analysis and Experimental Verification,” ASME National Heat Transfer Conference, August 6-8, 1995, Portland, Oregon. Also published as a technical paper in *Proceedings of the 30th National Heat Transfer Conference*, ASME HTD-Vol. 306, pp.191-199
- **Jen, T.C.**, 1995, “Simultaneously Developing Laminar Convection in the Entrance Region of a Semi-Porous Channel with Non-uniform Wall Suction,” 4th ASME/JSME Thermal Engineering Joint Conference, March 19-24, 1995, Lahaina, Maui, Hawaii. Also published as a technical paper in *Proceedings of the ASME/JSME Thermal Engineering Joint Conference*, Vol. 3, pp. 355-363

- **Jen, T.C.**, and Lavine, A.S., 1995, "Laminar Mixed Convection in the Entrance Region of a Horizontal Fully-Porous Channel," ASME International Mechanical Engineering Congress and Exposition, November 12-17, 1995, San Francisco, California. Also published as a technical paper, ASME Paper No. 95-WA/HT-14
- **Jen, T.C.**, and Lavine, A.S., 1994, "Prediction of Tool Temperatures in Interrupted Metal Cutting," 7th International Symposium on Transport Phenomena in Manufacturing Processes, August 28-31, 1994, Acapulco, Mexico. Also published as a technical paper in the *Proceedings of 7th International Symposium on Transport Phenomena in Manufacturing Processes*, pp. 211-216
- **Jen, T.C.**, 1994, "Simultaneously Developing Laminar Convection in the Entrance Region of a Semi-Porous Channel," 6th AIAA/ASME Thermophysics and Heat Transfer Conference, June 20-23, 1994, Colorado Springs, Colorado. Also published as a technical paper in *Current Developments in Numerical Simulation of Flow and Heat Transfer*, ASME HTD-Vol. 275, pp. 111-122
- **Jen, T.C.** and Lavine, A.S., 1994, "A Comparison Between Two Approaches for Calculating Temperatures of Surfaces Exposed to Discrete Moving Heat Sources," 6th AIAA/ASME Thermophysics and Heat Transfer Conference, June 20-23, 1994, Colorado Springs, Colorado. Also published as a technical paper in *Transport Phenomena in Manufacturing and Materials Processing*, ASME-HTD-Vol. 280, pp. 13-17
- **Jen, T.C.** and Lavine, A.S., 1992, "Thermal Aspects of Grinding: An Improved Model of Heat Transfer to Workpiece, Wheel and Fluid," ASME Winter Annual Meeting, November 8-13, 1992, Anaheim, California. Also published as a technical paper in *Heat Transfer in Material Processing*, ASME HTD-Vol. 224, pp. 1-7
- **Jen, T.C.**, and Lavine, A.S., 1992, "Thermal Aspects of Grinding: The Effect of Flow Boiling," National Heat Transfer Conference, August 9-12, 1992, San Diego, California. Also published as a technical paper in *Transport Phenomena in Materials Processing and Manufacturing*, ASME HTD-Vol. 196, pp. 91-98
- Lavine, A.S., and **Jen, T.C.**, 1989, "Thermal Aspects of Grinding: Heat Transfer to Workpiece, Wheel, and Fluid," ASME Winter Annual Meeting, December 10-15, 1989, San Francisco, California. Also published as a technical paper in *Collected Papers in Heat Transfer*, ASME HTD-Vol. 123, pp. 267-274
- Hwang, G.J., and **Jen, T.C.**, 1987, "Forced Convection in Fully Developed Flow in a Rotating Isothermal Duct with Axial Conduction," 2nd ASME/JSME Thermal Engineering Joint Conference. Also published as a technical paper in the *Proceedings of ASME/JSME Thermal Engineering Joint Conference*, Vol. 2, pp. 43-49

Teaching Experience

Summary of Teaching Evaluations

The rating key is as follows:

1 – Excellent

5 – Poor

Course Title	Semester	Evaluation Rating
ME 712 Convection Heat and Mass Transfer	Fall 1997	1.97 (1.91¹)
ME 715 Numerical Methods in Engineering	Spring 1998	1.72 (1.93¹)
ME 321 Basic Heat Transfer	Fall 1998	2.86 (2.20¹)
ME 711 Thermal Radiation and Conduction	Fall 1998	1.51 (2.20¹)
ME 415 Modern Thermomanufacturing Processes	Spring 1999	1.34 (2.14¹)
ME 311 Introduction to Heat Transfer	Fall 1999	1.78 (2.16¹)
ME 721 Fundamentals of Fluid Flow	Fall 1999	1.42 (2.16¹)

¹ Departmental course evaluation average

In Spring 2000, a new scoring system was implemented. The rating key for this new scoring system is as follows:

1 – Poor

5 – Excellent

Course Title	Semester	Course Toughness	Evaluation Rating
ME 311 Introduction to Heat Transfer	Spring 2000	N/A	3.99 (3.85 ¹)
ME 415 Modern Thermomanufacturing Processes	Spring 2000	N/A	4.44 (3.85 ¹)
ME 311 Introduction to Heat Transfer	Fall 2000	N/A	4.31 (3.95 ¹)
ME 712 Convection Heat and Mass Transfer	Fall 2000	N/A	4.41 (3.95 ¹)
ME 311 Introduction to Heat Transfer	Spring 2001	4.07	4.01 (4.05 ¹)
ME 715 Numerical Methods for Engineers	Spring 2001	4.63	4.68 (4.05 ¹)
ME 415 Modern Thermomanufacturing Processes	Fall 2001	3.65	4.44 (4.14 ¹)
ME 721 Fundamentals of Fluid Flows	Fall 2001	4.22	4.28 (4.14 ¹)
ME 320 Introduction to Fluid Mechanics	Spring 2002	4.07	3.94 (4.19 ¹)
ME 712 Convection Heat and Mass Transfer	Spring 2002	4.63	4.83 (4.19 ¹)
ME 320 Introduction to Fluid Mechanics	Fall 2002	3.90	3.81 (3.95 ¹)
ME 711 Thermal Radiation and Conduction	Fall 2002	4.39	4.54 (3.95 ¹)
ME 320 Introduction to Fluid Mechanics	Spring 2003	3.47	4.14 (4.03 ¹)
ME 415 Modern Thermomanufacturing Processes	Spring 2003	3.68	4.99 (4.03 ¹)
ME 320 Introduction to Fluid Mechanics	Fall 2003	3.46	4.05 (4.11 ¹)
ME 712 Convection Heat and Mass Transfer	Fall 2003	4.50	4.80 (4.11 ¹)
ME 320-001 Introduction to Fluid Mechanics	Spring 2004	3.74	3.84 (4.17 ¹)
ME 320-002 Introduction to Fluid Mechanics	Spring 2004	3.71	3.73 (4.17 ¹)
ME 415 Modern Thermomanufacturing Processes	Fall 2004	3.50	3.68 (4.07 ¹)

¹ Rank #1 in the Mechanical Engineering Department

ME 715 Numerical Methods for Engineers	Fall 2004	4.42	3.89 (4.07¹)
ME 320 Introduction to Fluid Mechanics	Spring 2005	3.91	4.12 (4.13¹)
ME 712 Convection Heat and Mass Transfer	Spring 2005	4.57	4.55 (4.13¹)
ME 321 Basic Heat Transfer	Summer 2005	4.13	4.74
ME 321 Basic Heat Transfer	Fall 2005	4.25	3.95 (4.10¹)
ME 415 Modern Thermomanufacturing Processes	Spring 2006	3.40	4.06 (4.03¹)
ME 320 Introduction to Fluid Mechanics	Summer 2006	3.60	4.54
ME 712 Convection Heat and Mass Transfer	Fall 2006	3.83	4.66 (4.12¹)
ME 415 Modern Thermomanufacturing Processes	Spring 2007	3.50	4.29 (4.21¹)
ME 711 Thermal Radiation and Conduction	Fall 2007	4.30	4.68 (4.22¹)
ME 712 Convection Heat and Mass Transfer	Spring 2008	4.14	4.76 (4.37¹)
ME 415 Modern Thermomanufacturing Processes	Fall 2008	3.45	3.79 (3.98¹)
ME 320 Introduction to Fluid Mechanics	Spring 2009	3.23	4.35 (4.11¹)
ME 711 Thermal Radiation and Conduction	Fall 2009	4.79	3.84 (4.12¹)
ME 415 Modern Thermomanufacturing Processes	Spring 2010	4.11	4.15 (4.08¹)

Undergraduate and Graduate Research Projects, Theses and Dissertations Directed

Ph.D. Dissertations

- “Investigation of Heat Pipes for Drilling Applications,” Gustavo Gutierrez, Ph.D. Dissertation, August 2002
- “Numerical Simulation of Direct Methanol Fuel Cell,” Tuan-Zhou Yan, Ph.D. Dissertation, August 2005
- “Computational Fluid Dynamics Simulation and Experimentation of Bubbly Two-Phase Flow in Horizontal Configurations,” Junghan Park, Ph.D, Dissertation, August 2007
- “Application of Lattice Boltzmann Equation Method for the Fluid Flow and Heat Transfer,” Quan Liao, Ph.D Dissertation, May 2008
- “Processing and Characterization of Solid and Microcellular Based and Biodegradable PHBV-Based Polymer Blends and Composites,” Alireza Javadi, Ph,D Dissertation, August 2010
- “An Experimental Investigation Characterizing the Tribological Performance of Natural and Synthetic Biolubricants composed Carboxylic Acids for Energy Conservation and Sustainability,” Carlton Reeves, Ph.D Dissertation, January 2014.
- “Reactor Scale Simulation of Atomic Layer Deposition,” Mohammed Reza Shaeri, Ph.D Dissertation, March , 2014.

Ph.D. Dissertator (titles and tentative graduation dates)

- “Numerical Simulations on a New Cold Gas Dynamic Spray Process of Micro- and Nanoparticles,” Qinghua Chen, Ph.D. Dissertation, Fall 2014 (expected)

Ph.D. Students Currently Under Advisement

- Dan Nemecek, beginning Spring 2010
- Arash Kialashaki, beginning Fall 2010

M.S.. Students Currently Under Advisement

- Stephen Schroeder, beginning Fall 2013

M.S. Theses

- “Numerical Heat Transfer Analysis in Three Dimensional Transient Cutting Tool Temperatures,” M.S. Thesis, Sunil Eapen, graduated Summer 2000, currently employed at GE Healthcare Technologies

- “Thermal Analysis of a Wet-disk Clutch Engagement and Disengagement,” M.S. Thesis, Daniel James Nemecek, graduated December 2000, currently employed at GE Healthcare Technologies
- “Thermal Performance of Heat Pipe Drill: Experimental Study,” M.S. Thesis, Yau-Min Chen, May 2004
- “Investigation of Thermosyphon Cooling for a Drilling Operation: An Experimental Study,” Fern Tuchowski, May 2005, currently employed at Modine.
- “Investigation into Using a Thermosyphon to Cool an End Mill Bit,” M.S. Thesis, Matt Parke, May 2006, currently employed at Lockheed Martin.
- “A Study of Convective Heat Transfer and Pressure Drop Phenomena in Curved Microchannels,” Heng-Chih Tang, August 2010
- “Thermal Analysis of Particle Critical Velocity on Bonding Efficiency in Cold Gas Dynamics Spraying Process,” Sung-Cheng Wong, August 2010
- “Feasibility and Effectiveness of Heat Pipe Cooling in End Milling Applications,” Hsiu-Hao Wu, August 2010
- “Research on the Correlation between Carrier Gas and Particle Velocity in Cold Gas Dynamic Spraying (CGDS) Process,” Yi-Hsin Yen, August 2010
- “Thermal Analysis in Numerical Simulation of Three-Dimensional Particle Deposition in Cold Gas Dynamic Spraying Process,” Yen-Ting Pan, August 2011
- “Geometric Effects of a Diameter Reduction in Internal Air-Water Two-Phase Flow,” Thomas Aidich, January 2012, currently, manager of Hampel Corporation.
- “Hydrogen Generation from Magnesium Hydrides by using Organic Acid”, Yen-Hsi Ho, May 2013.

Visiting Scholars and Visiting Professors

- Dr. Jeong-Bo Park, Visiting Adjunct Professor, January 2001 to December 2001
- Dr. Liangming Pan, Visiting Scholar, April 2004 to December 2004
- Dr. Wenzhi Cui, Visiting Scholar, March 2007 to March 2008
- Dr. Wei Tan, Visiting Scholar April 2007 to October 2009
- Mr. Jianhua Zhang, Visiting Scholar, August 2007 to August 2008
- Mr. Changnian Chen, Visiting scholar, October 2009 to November 2010
- Dr. Jitian Han, Visiting Professor, June 2011 to August 2011
- Dr. Juanfang Liu, Visiting Scholar, March 2011 to September 2011
- Ms. Wanning Zhang, Visiting Scholar, August 2011 to present
- Dr. Chung-Hsin Chao, Visiting Scholar, June 2012-December 2012

Doctoral and Master Internships

- “Doctoral Internship”, Phillip Healthcare Solutions, Starry Lai, August 2011 to present
- “Doctoral Internship,” Chirch Global LLC, Tuan-Zhou Yan, January-December 2004
- “Doctoral Internship,” Twin-Disk Incorporated, G. Gutierrez, Summer 2000.
- “Master Internship,” GE Medical System, S. Eapen, Spring and Summer 2000

Graduate Research Projects Directed

- Enhancement of Transient Tool Temperature Prediction in Turning and Milling Operations, GM Tech Center (Graduate Students: Gustavo Gutierrez and Sunil Eapen)
- Finite Element Modeling of Heat Distribution on the Rake Face of a Milling Insert, GM Tech Center (Graduate Students: Gustavo Gutierrez and Sunil Eapen)
- Transient Tool Temperature Prediction in Milling Operations, sponsored by Society of Manufacturing Engineers (SME) (Graduate Students: Gustavo Gutierrez and Sunil Eapen)
- Analytical and Experimental Studies in Drill Temperatures with Heat Pipe Cooling: A Novel Approach, sponsored by NSF-GOALI program, Lamb Technicon Machining Systems, SME, and UWM Incentive Program (Graduate Students: Gustavo Gutierrez, Yuning Jiao, Yau-Min Chen, Fern Tuchowski, Matt Parke, Quan Liao, and Qinghua Chen)
- Thermal Management in High Speed Aluminum Machining, UW System Applied Research Grant (Graduate Student: Gustavo Gutierrez)
- Developing Predictive Thermal Optimization Tool for Laser-Assisted Manufacturing, sponsored by UW System Applied Research Grant and SME Research Initiation Grant (Graduate Students: Yau-Min Chen, Fern Tuchowski, and Rajendra Jadhav)
- Vorticity-Velocity Based Method in Three-Dimensional Numerical Heat Transfer and Fluid Flow Analysis (Graduate Students: Dan Nemecek and Gustavo Gutierrez).
- Heat Transfer and Fluid Flow in Wet Disk Clutch System (Graduate Student: Dan Nemecek)
- Theoretical and Experimental Research of an Innovative Fuel Cells Reformer (Graduate Students: Tuanzhou Yan, Yau-Min Chen, Fern Tuchowski, and Qinghua Chen)
- Experimental and Theoretical Studies of HP DMFC-Hydrogen Peroxide Direct Methanol Fuel Cell, sponsored by NASA WI consortium (Graduate Students: Tuanzhou Yan, Yau-Min Chen, Fern Tuchowski and Qinghua Chen)
- Experimental and Theoretical Studies of Nano-Particles Cold Gas Dynamic Spraying on Application of Fuel Cell Manufacturing (Graduate Students: Tuanzhou Yan, Fern Tuchowski, Yau-Min Chen, and Qinghua Chen)
- Environmentally Benign Internal Cooling of End Mills, collaboration with UW – Madison (Dr. Pfefferkorn), sponsored by UW System Applied Research Grant (Graduate Students: Fern Tuchowski, Matt Parke, and Quan Liao)

- A Feasibility Study on Metalworking Fluid and Solid Waste Elimination for Environmentally Benign Machining Processes, sponsored by UW System Waste Management Program and EPA (07-09) (Graduate Students: Matt Parke, Quan Liao, and Qinghua Chen)
- Electrostatic-force-assisted Cold Gas Dynamic Spray of Nanoparticles – A New Low Temperature Process for Producing Nanostructured Coatings, sponsored by UW system Applied Research Grant, ITS (International Thermal Systems), and Helgensen Inc., (Graduate Students: Quan Liao and Qinghua Chen)

Undergraduate Research Projects Directed

- “Numerical Heat Transfer Analysis of a Twist Drill with Internal Air Cooling,” J. Whitmore and J.T. Wernette, Summer 2000
- “Experimental Study of Heat Transfer Performance of Heat Pipe Drill,” Jeff Gehlhoff, undergraduate student researcher working under NSF REU (Research Experience for Undergraduate Students), June-December 2002
- “Experimental Study of Heat Transfer Performance of Heat Pipe Drill,” Fern Tuchowski, undergraduate student researcher working under NSF REU support June 2002-September 2003
- “Numerical Study of Heat Transfer Performance of Heat Pipe Drill,” Saurabh Mohatta, undergraduate student researcher working under NSF REU support, January-July 2002
- “Experimental Study of Heat Transfer Performance of Heat Pipe Drill,” Katina Zervak, undergraduate student researcher working under NSF REU support, June 2002-September 2004
- “Experimental Study of Laser-Assisted Drilling Process,” Colin McKean, undergraduate student researcher working under the Applied Research Grant, July 2001-June 2002
- “Experimental Study of Laser-Assisted Drilling Process,” Katina Zervak, undergraduate student researcher working under the Applied Research Grant, July 2001-June 2002
- “Experimental Study of Heat Transfer Performance of Heat Pipe Drill,” Anna Webb, undergraduate student researcher working under NSF REU support, June 2003-September 2005
- “Experimental Study of Heat Transfer Performance of Heat Pipe Drill,” Rachel Sommerfeld, undergraduate student researcher working under NSF REU support, June 2005-September 2006
- “Experimental Study of Heat Transfer Performance of Thermosyphon and Heat Pipe end Mill,” Fue Yang, undergraduate student, independent study, Fall 2006
- “Experimental Study of Heat Transfer Performance of Heat Pipe Drill,” Rachel Sommerfeld, undergraduate student researcher working under the UWM SURF program, June 2008-May 2009

- “Experimental Investigation on the Performance of Cold Gas Dynamic Spraying Processes,” Mathew Zimmer, undergraduate student researcher working under the UWM/CEAS SURF program, June 2009-May 2011
- “Numerical Simulation on the Performance of Laser-Assisted Cold Gas Dynamic Spraying Processes,” Arielle Walker, undergraduate student researcher working under the UWM/CEAS SURF program, June 2011 to May 2012.

Significant Committee Service

Department-level Committees

- Mechanical Engineering Department Coordinator for CEAS Open House, July 2005-October 2010
- Ex-officio member: Mechanical Engineering Academic Planning Committee, July 2005-July 2010
- Ex-officio member: Mechanical Engineering Graduate Program Committee, July 2005-July 2010
- Ex-officio member: Mechanical Engineering Undergraduate Program Committee, July 2005-July 2010
- Member: Mechanical Engineering Executive Committee, August 2001-October 2010
- Ph.D. Qualifying Examination Committee, February 1998-October 2010
- Chair, Mechanical Engineering Graduate Program Committee, August 1998-July 2004
- Chair, Mechanical Engineering Academic Planning Committee, August 2004-July 2005
- Mechanical Engineering Department Seminars Secretary, February 1998-August 2005
- Responsible for Maintaining Department Web Page, August 1997-August 2005
- Faculty Advisor for Pi Tau Sigma: Honorary Mechanical Engineering Fraternity, July 1998 to present

College-level Committees

- Member, CEAS Research and Teaching Award Committee, August 2002-July 2004
- Member, Graduate Program Subcommittee, August 1998-July 2004
- Member, CEAS Space Committee, August 2003-July 2005
- Member, CEAS Academic Planning Committee, August 2004-July 2005
- Editorial Board Member, CEAS publications including *UWM Engineers*, August 2006 to present

University-level Committees

- UWM Extension Policy Committee, August 1998-July 2001
- Graduate School Fellowship Committee, August 2004 to Spring 2006

- CEAS Dean's Search and Screen Committee, 2007 and 2008
- College of Health Science Dean's Search and Screen Committee, 2008
- Nomination Committee, April 2007-October 2010
- University Committee, August 2008-October 2010

Community Service

Extension Activities

- Member of the UW-Extension Committee, several initiatives were proposed in the committee to enhance collaboration with the community.
- Officer, Milwaukee Chinese School (located in UWM child care center), in charge of preparing books, materials for students, and teaching aids for teachers, August 1998-July 2001
- Participant, Asian Moon Festival, two days each year, Milwaukee Taiwanese Association, 1997 to present
- Participant, International Folk Fair, two days each year, Milwaukee Taiwanese Association, 1997 to present
- Judge for Nicolet High School Science Fair, 2004, 2005, 2006, 2009, 2010
- Judge for University High School Science Fair, 2011, 2012
- Advisory Board Member for Milwaukee Region Science and Engineering Fair (MRSEF), July 2006 to present

Administrative Service

- Dean, College of Engineering (UAA), May, 2013-May 2014
- Interim Dean, College of Engineering and Applied Science (UWM), October 2010 to December 2012
- Chairman, Department of Energy Industrial Assessment Center Board (UWM), October 2011 to present
- Chair, Mechanical Engineering Department, July 2005-July 2010
- Chair, Mechanical Engineering Graduate Program Committee, August 1998-July 2004
- Chair, Mechanical Engineering Academic Planning Committee, August 2004-July 2005
- Vice Chair, Search and Screen Committee, College of Engineering and Science Dean's Search, November 2007-April 2008
- Member, Search and screen /committee, College of Health Science Dean's Search, November 2008-April 2009

- Member, Search and Screen Committee, College of Engineering and Science Dean's Search, July 2008-April 2009

Professional Service

Editing of Journals

- Associate Editor, *International Journal of Transport Phenomena*
- Regional Editor, *Far East Journal of Applied Mathematics*
- Regional Editor, *JP Journal of Heat and Mass Transfer*
- Editorial Board, *The Scientific World Journal*

Refereeing of Articles, Books, and Grant Proposals

Frequent reviewer for the following journals:

- *ASME Journal of Heat Transfer*
- *ASME Journal of Fluid Engineering*
- *ASME Journal of Tribology*
- *ASME Journal of Manufacturing Science and Engineering*
- *ASME Journal of Engineering for Industry*
- *ASME Journal of Pressure Vessel Technology*
- *International Journal of Heat and Mass Transfer*
- *AIAA Journal of Thermophysics and Heat Transfer*
- *Energy Conversion & Management*
- *Solar Energy*
- *Numerical Heat Transfer*
- *Applied Thermal Engineering*
- *Powder Technology*
- *JP Journal of Heat and Mass Transfer*
- *Far East Journal of Applied Mathematics*
- *Journal of Manufacturing Systems*
- *STLE Journal*
- *IEEE Transactions on Systems, Man, and Cybernetics*
- *International Journal of Transport Phenomena*

Frequent reviewer of papers submitted for the following conferences:

- American Society of Mechanical Engineering National Heat Transfer Conference

- American Society of Mechanical Engineering International Mechanical Engineering Congress and Exposition
- International Symposium on Transport Phenomena (ISTP) organized by Pacific Center of Thermal-Fluids Engineering
- International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC) organized by Pacific Center of Thermal-Fluids Engineering
- American Nuclear Society Conferences

Reviewer for:

- National Science Foundation grant proposals

Panel Participation

- Panelist, National Science Foundation SBIR (Small Business Innovative Research) Phase I on “Machine and Process Development” proposals review, August 1999
- Panelist, National Science Foundation DMII program regular proposals for Manufacturing and Machine Equipments program, December 2000
- Panelist, National Science foundation DMII program SBIR proposals for “Microelectronic Manufacturing” program, March 2001
- Panelist, National Science foundation DMII program SBIR proposals for “Electronic Materials” program, March 2002
- Panelist, National Science Foundation, DMII program regular proposals for MME sub-program, December 2002
- Panelist, National Science Foundation DMII program regular proposals for MPM sub-program, May 2003
- Panelist, National Science Foundation DMII program SBIR proposals for “Electronic Materials” program, September 2003
- Panelist, National Science Foundation, DMII program regular proposals for MME sub-program, December 2003
- Panelist, National Science Foundation DMII program SBIR/STTR Hydrogen Separation Panel, March 2004
- Panelist, National Science Foundation DMII program SBIR/STTR proposals for “Structural Materials” program, April 2004
- Panelist, National Science Foundation, DMII program CAREER proposal panel for MME sub-program, November 2004
- Panelist, National Science Foundation DMII/TTTP Manufacturing regular proposal program, January 2005
- Panelist, National Science Foundation DMII program SBIR/STTR Phase I, Hydrogen Separation, February 2005

- Panelist, National Science Foundation DMII program SBIR/STTR Lithography-Ion Sources B.3.2 proposal panel, March 2005
- Panelist, National Science Foundation, DMII program regular proposal panel for MME sub-program, December 2005
- Panelist, National Science Foundation DMII/TTTP Manufacturing regular proposal program, January 2006
- Panelist, National Science Foundation DMII program SBIR/STTR Phase I, Hydrogen Separation, February 2006
- Panelist, National Science Foundation DMII program SBIR/STTR Lithography-Ion Sources proposal panel, March 2006
- Panelist, National Science Foundation CTS program regular proposal panel, March 2006
- Panelist, National Science Foundation, DMII program SBIR/STTR Phase II Chemical Based Technology proposal panel, September 2006
- Panelist, National Science Foundation, DMII program regular proposal panel, MME sub-program, December 2006
- Panelist, National Science Foundation, DMII program SBIR/STTR Phase I Electronic Packaging proposal panel, January 2007
- Panelist, National Science Foundation, DMII program SBIR/STTR Phase I Electronic Packagings proposal panel, January 2007
- Panelist, National Science Foundation, DMII program regular proposal panel, MME sub-program, March 2007
- Panelist, National Science Foundation, DMII program SBIR/STTR Phase I Electronic Manufacturing proposal panel, August 2007
- Panelist, National Science Foundation, DMII program SBIR/STTR Phase I Energy Systems II proposal panel, February 2008
- Panelist, National Science Foundation, DMII program SBIR/STTR Phase I Packaging and Fabrication Technologies for Electronics proposal panel, September 2008
- Panelist, National Science Foundation, CTS program Catalysis and Biocatalysis Unsolicited proposal panel, May 2009
- Panelist, National Science Foundation, DMII program SBIR/STTR Phase I NAM Thermo/Optical Materials and Devices proposal panel, July 2009
- Panelist, National Science Foundation, DMII program SBIR/STTR Phase I Nano-manufacturing and Nano-materials proposal panel, September 2010
- Panelist, National Science Foundation, CTS program SBIR/STTR Phase I Flow Batteries proposal panel, February 2011
- Panelist, National Science Foundation, CMMI program SBIR/STTR Phase I High Temperature Materials proposal panel, March 2011

- Panelist, National Science Foundation, CMMI program, regular proposal, Manufacturing and Machine Equipment, May 2012
- Panelist, National Science Foundation, CMMI program, SBIR/STTR Phase I Nano-manufacturing and Nano-materials proposal panel. February, 2014

Offices Held in Professional Organizations

Member of ASME *K-15 Committee on Transport Phenomena in Manufacturing and Materials Processing*, 1997 to present. This committee is one of several in the Heat Transfer Division of ASME, and deals with setting the ASME agenda in transport phenomena in manufacturing and materials processing; as well as coordination of conferences, sessions, journals, and other activities of the Society in this area.

Participation in Planning Professional Programs

- Organized and co-chaired technical session on *Transport Phenomena in Manufacturing and Materials Processing* at the 1999 ASME National Heat Transfer Conference, Albuquerque, New Mexico
- Organized and co-chaired technical session on *CFD Validation in Turbine Blade Cooling* at the Proceedings of the 8th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-8), March 26-30, 2000, Honolulu, Hawaii
- Organized and chaired technical session on *Transport Phenomena in Manufacturing and Materials Processing* at the 2001 ASME National Heat Transfer Conference, Anaheim, California
- Participated in K-15 Committee meeting of the ASME Heat Transfer Division, August 2000, Pittsburgh, Pennsylvania, and November 2000, Orlando, Florida
- Participated in K-15 Committee meeting of the ASME Heat Transfer Division, June 2001, Anaheim, California, and November 2001, New York City, New York
- Participated in K-15 Committee meeting of the ASME Heat Transfer Division, November 2002, New Orleans, Louisiana
- Elected as KCR (K Committee Representative, topical organizer) for 2003 ASME International Mechanical Engineering and Congress Exposition
- Participated in K-15 Committee meeting of the ASME Heat Transfer Division, July 2003, Las Vegas, Nevada
- Served as KCR (K Committee Representative) for K-15 Committee for 2003 ASME International Mechanical Engineering and Congress Exposition, November 2003, Washington, D.C.
- Participated in K-15 Committee meeting of the ASME Heat Transfer Division, November 2004, Anaheim, California
- Elected as KCR (K Committee Representative) for K-15 committee for 2005 National Heat Transfer Conference, July 2005, San Francisco, California

- Participated in K-15 Committee meeting of the ASME Heat Transfer Division, November 2005, Orlando, Florida
- Served as KCR (K Committee Representative) for K-15 Committee for 2005 National Heat Transfer Conference, July 2005, San Francisco, California
- Elected as KCR (K Committee Representative) for K-15 Committee at 2006 ASME International Mechanical Engineering Congress and Exposition, November 2006
- Participated in K-15 Committee meeting of the ASME International Mechanical Engineering Congress and Exposition, November 2006
- Served as KCR (K Committee Representative) for K-15 Committee at 2006 ASME International Mechanical Engineering Congress and Exposition, November 2006, Chicago, Illinois