



The Department of MECHANICAL ENGINEERING



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Mechanical Engineering

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Ohadi, Michael



Minta Martin Professor
Department of Mechanical Engineering
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Research Interests

Heat and mass transfer at the meso, micro and nano-scales with applications to thermal/fluid system miniaturization
Smart heat exchangers
Electronic cooling
Innovative energy systems

Education

Ph.D., University of Minnesota, 1986

Honors and Awards

Accredited member, The European Process Intensification Center, in recognition of contributions in Enhanced Heat and Mass Transfer Augmentation research impact, April 2013

Contributing Author, the [Global Energy Assessment](#) (GEA) policy document, Nov. 2012. The GEA document was authored by selected experts from around the world. It examines major global challenges and their linkage to energy; existing and emerging technologies for affordable and clean energy; and policies/measures for sustainable future energy resources.

Nominated for the 2013 ASHRAE Campbell Award, in recognition of contributions in Research, Educational, and Professional Outreach activities in the sciences and applications of HVAC and refrigeration systems.

ITherm 2012 Award (the 13th Intersociety Conference on Thermal and Thermomechanical Phenomenon in Electronic Systems), in recognition of contributions to Panel Discussions and service as Track Co-Chair, June 2012

ASHRAE (American Society of Heating Refrigeration, and Air Conditioning Engineers) Exceptional Service Award, June 2011

SPE (Society of Petroleum Engineers) distinguished contributions award, May 2010

Regional Editor, Journal of Enhanced Heat Transfer (2001–Present)

Member, ASME Global Communities District J Operating Board (2009–Present).

Listed in Who's Who in Engineering Academia; Who's Who in the World, Marquis Who's Who, and several other distinguished citations.

Member of the Advisory Board and past Chairman, ASME Executive Committee for Process Industries (2004–Present)

ASHRAE Distinguished Service Award, June 2002

Elected ASHRAE Fellow Member Grade, June 2002

Elected ASME Fellow, May 1999

Elected to the ASME Society–Level Nominating Committee, June 2000–June 2002

Elected to ASME Potter Medal Awards Committee, February 2001–2005

Chairman of ASHRAE TC 8.4 Technical Committee on Air–to–Liquid Heat Exchangers, June 2001–June 2004

Faculty Advisor Award for “Most Active ASHRAE Student Chapter in the Eastern United States,” 2001

ASME/JSME Distinguished Service Award, June 1999

Japan STA Fellowship Award, 1998–1999

Finalist for “Invention of the Year Award,” University of Maryland, 1996

ASME ECO World 92 Distinguished Contribution Award, 1992

SAE Ralph R. Teeter Educational Award, 1989

Michigan Tech. Distinguished Teaching Award, University Level, 1989

Michigan Tech. Distinguished Teaching Award, Mechanical Engr. Departmental Level, 1988

State of Michigan MAGB Distinguished Faculty Award, 1988

Professional Memberships and Service

Member, ASME Nominating committee

Member and past Chairman, ASME Process Industry Division Executive Committee

Chairman, ASHRAE TC 8.4 Committee, Refrigerant–to–Air Heat Exchangers

Technical Associate Editor, Journal of Enhanced Heat Transfer

Technical Associate Editor, ASME Journal of Manufacturing and Science Engineering

Member, Advisory Editorial Board, Scientia, International Journal of Science and Technology

Selected Publications

2013

Dai, J., Ohadi, M.M., and Pecht, M., “Energy Efficiency and Reliability Risk Mitigation of Data Centers through Prognostics and Health Management,” Invited chapter, Festschrift book in honor of Prof. Bar–Cohen (2013 in press).

Covilion, R., Ohadi, M.M., and Shah, M., “Heat Transfer,” Chapter 4, ASHRAE Fundamentals Handbook, Published by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), Atlanta, GA (2013 edition).

Covilion, R. and Ohadi, M.M., “Mass Transfer,” Chapter 3, ASHRAE Fundamentals Handbook, Published by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), Atlanta, GA (2013 edition).

Covilion, R., Shah, M., Ohadi, M.M., and Choo, K., “Two–Phase Flow,” Chapter 5, ASHRAE Fundamentals Handbook, Published by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), Atlanta, GA (2013 edition).

Jaccard, M., Agbemabiese, L., Azar, C., Fischer, C., Fisher, B., Hughes, A., Ohadi, M.M., de Oliveira, A., Zhang, X., and Yamaji, K. 2012: Policies for Energy System Transformations. In *Global Energy Assessment: Towards a Sustainable Future*. L. Gomez–Echeverri, T.B. Johansson, N. Nakicenovic, A. Patwardhan, (eds.), IIASA, Laxenburg, Austria and Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Shooshtari, A., Mandel, R., and Ohadi, M., “Cooling of Next Generation Electronics for Diverse Applications,” Encyclopedia of Energy Engineering and Technology, S. Anwar, Ed., Taylor and Francis, New York, 2012. DOI: 10.1081/E–EEE–120048075

Ganapathy, H., Al–Hajri, E., and Ohadi, M.M., “Phase field modeling of Taylor flow in mini/micro channels, Part I: Bubble formation mechanisms and phase field parameters”, *Chemical Engineering Science*, Vol. 94, 2013, pp. 138–149.

Dai, J., Das, D., Ohadi, M.M., and Pecht, M., “Reliability Risk Mitigation of Free Air Cooling through Prognostics and Health Management,” *Journal of Applied Thermal Engineering* (2013, Accepted for publication).

2012

Ohadi, M.M., Choo, K., Dessiatoun, S., and Centegen, E., “Next Generation Micro Channel Heat Exchangers,” Springer Publishing Co., (2012).

Al–Hajri, E., Shooshtari, A. H., Dessiatoun, S., and Ohadi, M. M., “Performance Characterization of R134a and R245fa in a High Aspect Ratio Microchannel,” *Int’l. Journal of Refrigeration*, Vol. 36, (2012) 588–600.

Ganapathy, H., Al–Hajri, E. and Ohadi, M.M., “Phase field modeling of Taylor flow in mini/micro channels, Part II: hydrodynamics of Taylor flow”, *Chemical Engineering Science*, Vol. 94, 2012, pp. 156–165.

2011

Jha, V., Dessiatoun, S., Ohadi, M., and Al Hajri, E., "Experimental Characterization of Heat Transfer and Pressure Drop Inside a Tubular Evaporator Utilizing Advanced Microgrooved Surfaces," *ASME Journal of Thermal Sciences and Engineering Applications*, Vol. 4, 2011, pp. 41009-1 to 41009-7.

2010

Islam, M.D., Ohadi, M.M., and Kubo, I., "Measurement of Solar-Energy (Direct Beam Radiation) in Abu Dhabi, UAE," *Renewable Energy*, Vol. 35, 2010, 515-519.

Alshehhi, M., Shooshtari, A., Dessiatoun, S., Ohadi, M.M., and Goharzadeh, A., "Parametric Performance Analysis of an Electrostatic Wire-Cylinder Aerosol Separator in Laminar Flow Using a Numerical Modeling Approach," *Separation Science and Technology*, Vol. 45, 2010, pp. 299-309.

Islam, M.D., Ohadi, M.M., and Kubo, I., "Measurement of Solar-Energy (Direct Beam Radiation) in Abu Dhabi, UAE," *Renewable Energy*, Vol. 35, 2010, 515-519.

Jha, V., Dessiatoun, S., Ohadi, M., and Al Hajri, E., "Experimental Characterization of Heat Transfer And Pressure Drop Inside a Tubular Evaporator Utilizing Advanced Microgrooved Surfaces," *ASME Journal of Thermal Sciences and Engineering Applications*, Vol. 4, 2010, pp. 41009-1 to 41009-7.

2009

Islam, M.D., Kubo, I., Ohadi, M.M., and Alalili, A., "Measurement of solar energy radiation in Abu Dhabi, UAE," *Applied Energy*, Vol. 86, 2009, 511-515.

M.D. Islam, M. Al-Shehi, M. Ohadi, (2009), "Emerging applications in Cryogenics- Nitrogen injection for Reservoir Enhanced Oil Recovery", 2009, ASHRAE Transaction paper, also presented at the ASHRAE Annual meeting in Louisville, KY, June 20-24, 2009.

Foroughi, P., Shooshtari, A., Dessiatoun, S., and Ohadi, M., "Experimental Characterization of an Electrohydrodynamic Micropump for Cryogenic Spot Cooling Applications," *Heat Transfer Engineering*, Vol. 31, 2009, 2.

2008

Baumner T., Cetegen E., Ohadi M., and Dessiatoun S., "Force-fed Evaporation and Condensation Utilizing Advanced Micro-structured Surfaces and Micro-channels," *Journal of Microelectronics*, Vol. 39, 2008, pp. 975-980.

Rada, M., Shooshtari, A., and Ohadi, M. M., Experimental and Numerical Simulation of Meso-Pumping of Liquid Nitrogen - Application to Cryogenic Spot Cooling of Sensors and Detectors. *Sensors & Actuators: A. Physical*, Vol. 148, 2008, 271-279.

2001

Ohadi, M.M., and A.E. Bergles, "Heat Transfer," Chapter 3, *ASHRAE Handbook of Fundamentals*, Published by the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Atlanta, GA, pp. 3.1-3.27, 2001.

Darabi, J., M.M. Ohadi, and D. DeVoe. "An Electrohydrodynamic Polarization Micropump for Electronic Cooling," *Journal of Microelectromechanical Systems*, Vol. 10, No. 1, pp. 98-106, 2001.

2000

Ohadi, M.M., J. Darabi, and B. Roget, "Electrode Design, Materials, and Fabrication Fundamentals for EHD—Enhanced Transport Phenomena," in *Advanced in Heat Transfer*, Edited by C.L. Tien, Vol. 11, pp. 563-623, Begell House Publishers, Inc., New York, 2000.

Zhao, Y., M. Molki, M.M. Ohadi, and S.V. Dessiatoun, "Flow Boiling Heat Transfer of CO₂ in Micro Channels," *ASHRAE Transactions*, Vol. 1, Pt. 1, pp. 437-445, 2000.

Darabi, J., M.M. Ohadi, S.V. and Dessiatoun, "Augmentation of Thin Falling-Film Evaporation on Horizontal Tubes Using an Applied Electric Field," *Journal of Heat Transfer*, Vol. 122, No. 2, pp. 391-398, 2000.

Related News

Walking the Line

Finding Balance in Military and Academic Life November 1, 2018

2018 ARPA-E Summit to Showcase UMD Innovations

UMD Energy Innovation Technologies dominate February 26, 2018

Bar-Cohen Named President of IEEE Electronic Packaging Society

Professor Bar-Cohen began serving in this role January 1. January 3, 2018

University of Maryland Sponsors ITherm 2017 Conference

Professor Michael Ohadi is serving as General Chair of the conference organizing committee. May 30, 2017

David Hymas wins CEEE best student consortium presentation award

'Novel Polymer Composite Heat Exchanger for Dry Cooling of Power Plants' March 17, 2017

Kim Receives USM Regents' Faculty Award for Excellence in Teaching

University System of Maryland award recognizes Kim for his contributions to teaching. April 15, 2016

Ohadi Receives ASHRAE E.K. Campbell Award of Merit

Mechanical Engineering Professor Michael Ohadi recently received the ASHRAE E.K. Campbell Award of Merit. August 9, 2015

UMD Teams Awarded Over \$5 Million to Improve Power Plant Cooling Technologies

The U.S. Energy Department's Advanced Research Projects Agency-Energy (ARPA-E) funds two UMD teams to improve power plant cooling efficiency. May 21, 2015

Dasgupta Receives 2015 USM Regents' Faculty Award

University System of Maryland recognizes mechanical engineering faculty for excellence in scholarship. March 10, 2015

UMD Team Receives ASME AESD 2013 Best Paper Award

Pioneering work in mass transfer application of micro surfaces and fluidics. August 12, 2014

CEEE Kicks Off ARPA-e Advanced Heat Exchangers Project.

Impact of additive manufacturing on design of advanced heat exchangers for enhanced air-side heat transfer August 11, 2014

UMD Team Receives ASME AESD 2013 Best Paper Award

Department of Mechanical Engineering Team led by Professor Michael Ohadi wins 2013 ASME AESD Best Paper Award. June 12, 2014

Ohadi Awarded USM Regents' Faculty Award

Mechanical Engineering Professor Michael Ohadi recognized for Excellence in Innovation. March 19, 2014

Ohadi Recognized as Leading Expert in Heat Exchangers

Professor recognized as a world leading expert in the field of heat exchangers by EUROPIE. December 9, 2013

Mechanical Engineering Student Awarded NSF Travel Grant

Graduate student Harish Ganapathy receives grant to participate in the NSF 2013 Student Poster Symposium. November 11, 2013

"Embedded Cooling" of Next-Generation Power Electronics

UMD Research Team wins \$2.1 million contract from DARPA to develop "embedded cooling" technology May 24, 2013

Six Mechanical Engineering Students Selected for 2013 Future Faculty Program

Department has largest cohort in Clark School. February 22, 2013

ASHRAE National Capital Chapter Establishes Scholarship Fund in Mechanical Engineering

Fund will support one undergraduate and one graduate student. January 8, 2013

Harish Ganapathy Wins ASHRAE's Graduate Grant-in-Aid

Ph.D. student wins \$10,000 to fund research in HVAC and refrigeration. May 9, 2012

Two Department of Mechanical Engineering Students Win ASHRAE Scholarships

Daniel Ettehadih and J. Daniel Spencer were awarded \$1,000 by the National Capital Chapter. April 11, 2012

2012 Energy Research Fellows Announced

Awards will fund diverse sustainable energy research projects March 8, 2012

Ohadi Honored with ASHRAE Exceptional Service Award

Professor Michael Ohadi receives American Society of Heating and Air-Conditioning 2011 Exceptional Service Award. November 28, 2011

ME Welcomes the Return of Mike Ohadi

Professor returns to campus after serving as the Provost and Acting President of the Petroleum Institute. October 6, 2010

PI Holds 1st Annual Research Workshop

ME delegation travels to Abu Dhabi to promote research collaborations. February 17, 2010

ME Graduate Students Awarded ASHRAE Grant-in-Aid Funds

Al-Hajri and Alshehhi both participating in Energy Education and Research Collaboration (EERC) projects. June 5, 2007

Professors A.K. Gupta, Ohadi Chair Intl. Energy Conference

Conference held in Abu Dhabi during November 1-2, 2006. December 15, 2006

Agreement Established with Abu Dhabi Petroleum Institute

Cooperation seeks to enhance collaborative educational and research activities in energy sciences. May 2, 2006

ME Graduate Students Awarded ASHRAE Grant-in-Aid Funds

Awards to Fund HVAC Research for Parisa Fouroughi & Gohua Kuang August 15, 2005

ASHRAE Bestows Exceptional Service Award to Radermacher

The Department extends a heartfelt congratulations to Professor Radermacher. May 15, 2005

ME Graduate Students Awarded ASHRAE Grant-in-Aid Funds

Awards to Fund HVAC Research for Vytenis Benetis & Sourav Chowdhury. August 15, 2004

Professor Michael Ohadi elevated to grade of ASHRAE Fellow

ASHRAE has elevated Professor Michael Ohadi to the grade of Fellow. September 15, 2003

Prof. Michael Ohadi to receive ASHRAE's Distinguished Service Award

Award to be given on June 28, 2003 at the Society's 2003 Annual Meeting in Kansas City. March 31, 2003

ME Lab Presents Workshop on Thermal Packaging of High Flux Military and Commercial Electronics

This highly successful workshop's main charge was to identify the next round of emerging technologies in thermal management of high flux electronics. October 7, 2002

Small Business, Big Experience

A handful of University of Maryland MBA students turn to local firms for internships innovations. July 8, 2002

Incubator of the Year: Heat is on at Advanced Thermal

This Best New Incubator Company joined the University of Maryland College Park's Technology Advancement Program, TAP, in 2001. June 25, 2002

Advanced Heat Exchangers/EHD Laboratory Research Featured

Professor Michael Ohadi and the Advanced Heat Exchangers/EHD Laboratory are featured on November/December 2000 issue of the Journal of Heat Transfer Engineering. January 17, 2001