

Mehdi Mortazavi, Ph.D.

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LinkedIn: <https://www.linkedin.com/in/mmortazavi> ; Google Scholar: <https://goo.gl/uXQmZd>

Residency status: *Permanent resident (green card holder)*

- Mechanical engineer with 8 years of experience
- Experienced in heat transfer and energy systems
- Technical writing and presentation skills
- Manufacture and test of thermo-fluid systems

SKILLS

Technical

- Thermal Science: Ultra-High Vacuum Systems, Theoretical and experimental heat and mass transfer analysis, Pressure temperature and flow control systems, Falling film heat and mass exchangers, Computational Fluid Dynamics (CFD)
- Microfabrication: Mask design, Laser Writer, Photolithography, Wet and dry etching, Thin film deposition etc.
- Characterization: Scanning electron microscopy (SEM), X-ray photoelectron spectroscopy (XPS), Energy-dispersive X-ray spectroscopy, Optical microscopy, Profilometer
- Manufacturing: CNC machining, Wet etching of metals, Laser welding, Soldering and brazing, Adhesive and thermal bonding, Polymer processing
- General: High frequency data acquisition systems, LabVIEW

Computer

- Computer Languages: MATLAB, C, JAVA
- Analysis and simulation: CFD (STAR-CCM+, ANSYS FLUENT), FEA (ABAQUS), COMSOL, EES
- CAD: SolidWorks, AutoCAD

WORK EXPERIENCE

Postdoctoral Researcher

April 2017 – Present

Aerospace Research Center, Ohio State University, Columbus

- Studied particle rebound and deposition in turbomachinery.
- Designed and constructed a high temperature (2000K) burner rig.
- Computational fluid dynamics (CFD) simulation of deposition and erosion in gas turbines and jet engines.

Graduate Research Assistant

Jan 2012 – Dec 2016

Nanostructured Energy Systems labs, University of Florida, Gainesville

- Studied compact and efficient plate and frame absorption chillers.
- Designed, fabricated, and tested ultra-high vacuum heat and mass exchangers.
- Investigated the heat and mass transport in micro-textured falling films experimentally and computationally.
- Studied ionic liquids as alternative desiccant for absorption refrigeration systems.
- Design and test of a liquid desiccant combined dehumidification, water heating and air conditioning system.
- Fabricated a microscale heat sink for extreme heat rejection.

Graduate Research Assistant

Aug 2010-Jan 2012

University of Wisconsin, Milwaukee

- Investigated surface treatment techniques for enhanced heat and mass transport.
- Studied microfabrication processes used for making superhydrophobic surfaces.

Laboratory Technical Manager

Aug 2007-Aug 2010

Polymer Research Institute, Tehran

- Established and maintained a quality control program according to ISO 17025.
- Installed and trained operators on new thermal analysis and mechanical properties instruments.
- Studied thermal and mechanical properties of wide range of materials including polymers, metals and composites.

RELEVANT COURSEWORK

- Convection and Conduction heat transfer, Refrigeration, Air conditioning, Thermodynamics
- Fluid mechanics, Computational fluid dynamics (CFD), Flow & transport in porous media

EDUCATION

- Ph.D., Mechanical and Aerospace Engineering Department** December 2016
University of Florida, Gainesville
Thesis: Micro and nano-textured surfaces for enhanced heat and mass transport
GPA: 3.95/4.00
- Master of Science in Mechanical Engineering, GPA: 3.91/4.00** December 2011
University of Wisconsin-Milwaukee
- Master of Science in Chemical Engineering** August 2010
University of Tehran
- Bachelor of Science in Chemical Engineering** August 2007
Tehran Polytechnic

SELECT PUBLICATIONS

Patents

- **M. Mortazavi**, S. Moghaddam, D. Chugh, R. Nasr Isfahani, S. Bigham, A. Fazeli, D. Yu, , O. Abdelaziz, Open Absorption Cycle for Combined Dehumidification, Water Heating, and Evaporating Cooling, US20160320079A1 [Link](#)
- **M. Mortazavi**, S. Moghaddam, S. Bigham, Compact and Efficient Plate and Frame Absorber, WO2017053955A1 [Link](#)

Journal Publications

- CP Bowen, ND Libertowski, **M Mortazavi**, JP Bons “Modeling deposition in turbine cooling passages with temperature dependent adhesion and mesh morphing”, J. Turbomachinery, **2018**
- **M Mortazavi**, RN Isfahani, S Bigham, S Moghaddam, “Absorption characteristics of falling film LiBr (lithium bromide) solution over a finned structure”, Energy **2015**, [Link](#)
- **M Mortazavi**, S Moghaddam, "Laplace transform solution of conjugate heat and mass transfer in falling film absorption process", International Journal of Refrigeration **2016**, [Link](#)
- **M Mortazavi**, M Schmid, S Moghaddam, “Compact and efficient generator for low grade solar and waste heat driven absorption systems”, Applied Energy **2017**, [Link](#)
- A. Fazeli, **M. Mortazavi**, and S. Moghaddam, "Hierarchical biphilic micro/nanostructures for a new generation phase-change heat sink", Applied Thermal Engineering, **2015**, [Link](#)

Conferences

- **M Mortazavi**, RN Isfahani, S Bigham, S Moghaddam, “Absorption Characteristics of Multilayered Thin Lithium Bromide (LiBr) Solution Film”, ASME 2015 13th International Conference on Nanochannels, Microchannels, and Minichannels, San Francisco, **2015**, [Link](#)
- **M Mortazavi** and S Moghaddam. "Scalable bonding of polytetrafluoroethylene (ePTFE) nanofibrous membranes on microstructures." Enabling nanofabrication rapid innov, Napa, **2013**, [Link](#)