

Mohammad Robiul Hossan, Ph.D.

CONTACT

Assistant Professor
Department of Engineering and Physics
University of Central Oklahoma
Edmond, Oklahoma 73034

Phone: (405) 974 5295
Fax: (405) 974 3812
Email: mhossan@uco.edu
Web: <http://www.engineering.uco.edu/~mhossan/>

EDUCATION

PhD, Mechanical Engineering, Washington State University, Pullman, 2013
MS, Industrial Management, South Dakota State University, Brookings, 2009
MS, Mechanical Engineering, South Dakota State University, Brookings, 2008
BS, Mechanical Engineering, Bangladesh University of Eng. & Tech., Dhaka, Bangladesh, 2002

APPOINTMENTS

08/13 – Present	Assistant Professor, Department of Engineering and Physics, University of Central Oklahoma
01/12 – 05/13	Teaching Assistant, Washington State University
01/09 – 12/11	Research Assistant, Washington State University
08/06 – 05/07	Teaching Assistant, South Dakota State University
05/06 – 12/08	Student Intern, Daktronics Inc. Brookings, SD
08/05 – 05/06	Teaching Assistant, South Dakota State University

RESEARCH INTERESTS

- Electrokinetic transport in microfluidics for biomedical and energy application
- Numerical algorithm development, modeling and simulation of particle transport
- Microwave and radio frequency heating
- Microfabrication and integrated microdevice design and development

HONORS AND AWARDS

NIH OK-INBRE Mentorship, 2014
iPad Academy, University of Central Oklahoma, 2014
NSF CURE STEM Scholar, University of Central Oklahoma, 2013
Invited Talk at ASME club seminar series, University of Central Oklahoma, 2013
NSF-ASME Travel Award, 2012
GPSA Registration Grant, Washington State University, 2012
American Physical Society (APS) Travel Award, 2011
GPSA Travel Award, Washington State University, 2011
GPSA Registration Grant, Washington State University, 2011

Mechanical Engineering Merit List Award, 1998-2001

Bangladesh Government High School Graduation Merit Scholarships, 1998

PUBLICATIONS IN REFERRED JOURNALS

1. **Hossan, M. R.**, Gopmandal, P., Dillon, R., Dutta, P., “Bipolar Janus Particles Assembly in Microdevices”, Electrophoresis, 2015, Accepted, DOI: 10.1002/elps.201400423
2. **Hossan, M. R.**, Dillon, R., Dutta, P., “Hybrid Immersed Interface-Immersed Boundary Methods for AC Dielectrophoresis”, Journal of Computational Physics, 270, 640-659, 2014 ([*google scholar citation: 2*](#))
3. **Hossan, M. R.**, Dillon, R., Roy, A.K., Dutta, P., “Modeling and Simulation of Dielectrophoretic Particle-Particle Interactions and Assembly”, Journal of Colloid and Interface Sciences, 394, 619-629, 2013 ([*google scholar citation: 13*](#))
4. Hu, Z. and **Hossan, M.R.**, “Strength Evaluation and Failure Prediction of Short Carbon Fiber Reinforced Nylon Spur Gears by Finite Element Modeling”, Applied Composite Materials, 20, 315-330, 2013
5. Mani, K.B., **Hossan, M. R.**, Dutta, P., “Thermal analysis of microwave assisted bonding of poly (methyl methacrylate) substrates in microfluidic devices” International Journal of Heat and Mass Transfer, 58, 229-239, 2013 ([*google scholar citation: 1*](#))
6. **Hossan, M. R.**, R. Dutta, P., “Effect of Temperature Depended Properties in Electromagnetic Heating”, International Journal of Heat and Mass Transfer, 55, 3412-3422, 2012 ([*google scholar citation: 5*](#))
7. Jubery, T.Z., **Hossan, M.R.**, Bottenus, D.R. Ivory, C.F., Dong, W., Dutta, P., “A New Fabrication Technique to form Complex Polymethylmethacrylate microchannel for bioseparation”, Biomicrofluidics, 6, 016503, 2012 ([*google scholar citation: 4*](#))
8. Bottenus, D.R., **Hossan, M.R.**, Quyang, Y., Ivory, C.F., Dong, W., Dutta, P., “Preconcentration and detection of the phosphorylated forms of cardiac troponin I in a cascade microchip by cationic isotachopheresis”, Lab on a Chip, 11, 3793-3801, 2011 ([*google scholar citation: 12*](#))
9. **Hossan, M. R.**, Byun, D., R. Dutta, P., “Analysis of Microwave heating for cylindrical Shaped Objects”, International Journal of Heat and Mass Transfer, 53, 5129-5138, 2010 ([*google scholar citation: 40*](#))
10. Qian, L. & **Hossan, M. R.**” Effect on cutting force in turning hardened tool steels with cubic boron nitride inserts”, Journal of Materials Processing Tech., 191(1-3), 274-278, 2007 ([*google scholar citation: 64*](#))

PUBLICATIONS IN PEER REVIEWED CONFERENCE PROCEEDINGS

1. **Hossan, M. R.**, Dillon, R., Dutta, P., “Numerical Investigation of DC Dielectrophoretic Particle Transport”, Proceedings of ASME 4th Joint US-European Fluids Engineering Division Summer Meeting, 2014.
2. Ring, B.P., Lin, Y., Henderson, A.W., **Hossan, M.**, Lemley, E.C, “Reynolds Number Dependence of Laminar Loss Coefficients for a Rectangular-Cross Section Square-Cornered Tee Junction”, Proceedings of ASME 4th Joint US-European Fluids Engineering Division Summer Meeting, 2014. ([*google scholar citation: 1*](#))

3. **Hossan, M.**, Dillon, R., Dutta, P., “An AC Dielectrophoretic Trap for Cellular Assembly”, Proceedings of ASME International Mechanical Engineering Congress and Exposition 2013.
4. **Hossan, M.**, Dillon, R., Dutta, P., “Modeling and Simulation of Microscale Bipolar Particle Dynamics in an Applied Electric Field”, Proceedings of ASME International Mechanical Engineering Congress and Exposition 2013.
5. **Hossan, M. R.**, Dutta, P., “Modeling and Simulation of Dielectrophoretic Particle Assembly”, Proceedings of ASME International Mechanical Engineering Congress and Exposition 2012 **(google scholar citation: 1)**
6. Mani, K., **Hossan, M. R.**, Dutta, P., “Microwave Heating of Multi-layered Composites for Bonding”, Proceedings of ASME International Mechanical Engineering Congress and Exposition 2012
7. **Hossan, M. R.**, Dutta, P., “Analytical Solution for Temperature Distribution in Microwave heating of rectangular objects”, Proceedings of ASME International Mechanical Engineering Congress and Exposition 2011 **(google scholar citation: 2)**
8. **Hossan, M.R.**, Jubery, T.Z., Bottenus, D.R. Ivory, C.F., Dong, W., Dutta, P., “Preconcentration of Cardiac Protein in a Cascade Microfluidic Devices”, Proceedings of ASME International Mech. Eng. Congress and Exposition 2011
9. **Hossan, M. R.**, Dutta, P., “Analytical Investigation of Microwave Heating”, Proceedings of ASME International Mechanical Engineering Congress and Exposition 2010
10. **Hossan, M.R** & Hu Z. “Strength evaluation of polymer Composite spur gear by finite element Anlysis”, Proceedings of ASME International Mechanical Engineering Congress and Exposition 2008 **(google scholar citation: 1)**
11. Qian, L. & **Hossan, M. R.** “Using simulations to teach machining process optimization in manufacturing engineering education”, Proceedings of the Industrial Engineering Research Conference 2007
12. Qian, L., **Hossan, M. R.**, Yang, B. & Lei, S. “Feedrate Rescheduling in 3D Surface Machining with Various Methods”, Proceedings of Flexible Automation and Intelligent Manufacturing, FAIM, 2007

TECHNICAL ORAL AND POSTER PRESENTATIONS IN CONFERENCES (Presenter underlined)

Teigland, T., Omena, T., Allen, J., Smith, R., Karpowicz, S. and Hossan, M.R. “Preconcentrations Proteins by Isotachophoresis on a Microfluidic Chip” Oklahoma Academy of Science Technical Meeting 2014, Tulsa, OK

Benton, M.J. Hossan, M.R. “DC Dielectrophoretic Particle-Particle Interactions and Dynamics” Oklahoma Academy of Science Technical Meeting 2014, Tulsa, OK,

Hossan, M.R., Benton, M.J. “Interaction and Dynamics of Bipolar Janus Particles in a Background Electric Field” Oklahoma Research Day 2013, Edmond, OK

Shin, E.K., Hossan, M.R., Karpowicz, S. J. “Molecular cloning and protein expression of a heart disease-indicator protein” Oklahoma Research Day 2013, Edmong, OK

Hossan, M.R., “Analysis of electric field driven particle assembly and trapping in microfluidic devices” Oklahoma Academy of Science 102nd Annual meeting 2013, Lawton, OK

Hossan, M. R., Dutta, P., “Numerical Modeling and Simulation of Dielectrophoresis”, Wiley Research Exposition 2013, Pullman, WA

Hossan, M. R., Mani, K., Dutta, P., “Analysis of Microwave Bonding of Polymeric Microfluidic Devices”, Wiley Research Exposition 2013, Pullman, WA

Hossan, M. R., Dutta, P., “Modeling and Simulation of Dielectrophoretic Particle Assembly”, ASME International Mechanical Engineering Congress and Exposition 2012, Houston, TX

Mani, K., Hossan, M. R., Dutta, P., “Microwave Heating of Multi-layered Composites for Bonding”, ASME International Mechanical Engineering Congress and Exposition 2012, Houston, TX

Hossan, M. R., Dutta, P., “Numerical Modeling and Simulation of Dielectrophoresis”, Wiley Research Exposition 2013, Pullman, WA

Hossan, M. R., Dutta, P., “Numerical study of Dielectrophoretic Self-Assembly of Micro-Particles”, Published poster abstract and presented in ASME International Mechanical Engineering Congress and Exposition 2012

Hossan, M. R., Mani, K., Dutta, P., “Analysis of Microwave Bonding of Polymeric Microfluidic Devices”, Published poster abstract and presented in ASME International Mechanical Engineering Congress and Exposition 2012

Hossan, M. R., Dutta, P., “Analytical Solution for Temperature Distribution in Microwave heating of rectangular objects”, ASME International Mechanical Engineering Congress and Exposition 2011, Denver, CO

Hossan, M.R., Jubery, T.Z., Bottenus, D.R. Ivory, C.F., Dong, W., Dutta, P., “Preconcentration of Cardiac Protein in a Cascade Microfluidic Devices”, ASME International Mech. Engineering Congress and Exposition 2011, Denver, CO

Hossan, M. R., Dillon, R. Dutta, P., “A Hybrid Immersed Boundary-Immersed Interface Method for Cell Tracking in Microdevices”, American Physical Society- Division of Fluid Dynamics meeting 2011, Baltimore, MD

Hossan, M.R., Jubery, T.Z., Bottenus, D.R. Ivory, C.F., Dong, W., Dutta, P., “Preconcentration and detection of Cardiac Protein in a Cascade Microfluidic Devices by ITP, American Physical Society- Division of Fluid Dynamics meeting 2011, Baltimore, MD

Hossan, M.R & Hu Z. “Strength evaluation of polymer Composite spur gear by finite element Analysis”, ASME International Mechanical Engineering Congress and Exposition 2008, Boston, MA

Qian, L. & Hossan, M. R. “Using simulations to teach machining process optimization in manufacturing engineering education”, Proceedings of the Industrial Engineering Research Conference 2007

Qian, L., Hossan, M. R., Yang, B. & Lei, S. “Feedrate Rescheduling in 3D Surface Machining with Various Methods”, Proceedings of Flexible Automation and Intelligent Manufacturing, FAIM, 2007

PROFESSIONAL INVOLVMENTS & OUTREACH

Member (Present and Past)

American Society of Mechanical Engineers (ASME)

American Physical Society (APS)

Oklahoma Academy of Science (OAS)

The Council on Undergraduate Research (CUR)

Phi Kappa Phi

Senate member, Washington State University Graduate and Professional Student Government

Peer Reviewer:

ASME Journal of Fluids Engineering (4)

ASME International Mechanical Engineering Congress and Exposition (6)

International Journal of Exergy (1)

Services

Session organizer, ASME Int. Mech. Eng. Congress and Exposition, Montreal, Canada 2014

Session organizer, ASME 4th Joint US-European Fluids Engineering Meeting, Chicago, IL, 2014

Session Co-organizer, ASME Int. Mech. Eng. Congress and Exposition, San-Diego, CA 2013

GPSA Travel and registration grant proposal reviewer (2011-2012)

Organizer and Coordinator, Free Math Tutoring Program, WSU (2010-2012)

Graduate Advisory Committee of Timothy Collins, Department of Engineering and Physics, UCO

Ambassador, United Way Campaign 2013, UCO

Committee Member

Mechanical System Curriculum Committee, University of Central Oklahoma

Mechanical Engineering Laboratory Coordination, University of Central Oklahoma

ASME Club Faculty Advisorship, University of Central Oklahoma

Student Affairs (Admission, recruitment, retentions and transfer), University of Central Oklahoma