

## MEHMET BORA ISLIER

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### EDUCATION

**PhD in Mechanical Engineering**, Northeastern University, Boston, MA **April 2012**

- Dissertation Title: Effects of Nucleation Kinetics on the Microstructure and Surface Quality of Mono-Sized Spherical Metal Balls Produced by Capillary Jet Break-up

**MS in Mechanical Engineering**, Bogazici University, Istanbul, Turkey **February 2008**

- Thesis Title: Effects Of Compatibilizer Type And Processing Parameters On Mechanical Properties Of Polypropylene-Clay Nanocomposites Prepared By Melt Mixing

**BS in Mechanical Engineering**, Yildiz Technical University, Istanbul, Turkey **June 2005**

- Major in Thermodynamics and Heat Process

**BA in Business Administration**, Anadolu University, Eskisehir, Turkey **June 2009**

### RELEVANT EXPERIENCE

**Graduate Research Assistant** **September 2008 – present**

Northeastern University, Mechanical and Industrial Engineering Department, Boston, MA

- Working on the project Production of Mono-Sized Spherical Metal Balls by the Uniform-Droplet Spray Process (Funded by *Hitachi Metals Limited, Japan*)
- Improved the manufacturing process and produced metal powders in desired properties
- Conducted research on copper and iron-based alloys to study the fundamental aspects of droplet in-flight solidification, both experimentally and by simulation, with the ultimate goal of developing a droplet-based manufacturing process for the production of metal/alloy spheres suitable for applications like electronics packaging, MEMS, etc.
- Conducted the NSF-SBIR project Spray-Formed Soft Magnetic Material for Hybrid-Field Electric Motors, with the primary goal to develop a new soft magnetic material and manufacturing process for winding cores of electric motors that will result in improved efficiency and lower cost.
- Prepared progress reports and presentations for the sponsors, preparation of the dissertation is underway.

**Graduate Teaching Assistant** **Spring 2009**

Northeastern University, Mechanical and Industrial Engineering Department, Boston, MA

- Instructed the sophomore level Introduction to Materials Science Laboratory. Taught hands-on experiments and characterization techniques including mechanical property measurements, metallographic sample preparation and microstructural examination by optical microscopy and SEM.
- Graded homework assignments and lab reports.

**Graduate Research Assistant****2006 – 2008**

Bogazici University, Mechanical Engineering Department, Istanbul, Turkey

- Conducted the project Formulation, Preparation and Characterization of Polypropylene Nanocomposites (Funded by *The Scientific and Technological Research Council of Turkey*)
- Manufactured polypropylene-based nanocomposites by a twin-screw extruder and produced test samples by a plastic injection molder. Acquired experience on structural analysis (X-Ray Diffraction), physical testing (TGA, DMA and DSC) and mechanical testing (Tensile, Flexural and Izod-impact).
- Conducted research on The Effects of Zeolite as a White Filler on the Mechanical and Physical Properties of EPDM (Funded by *The Scientific and Technological Research Council of Turkey*)
- Produced ethylene-propylene-diene-monomer (EPDM)-based composites. Observed microstructure (SEM) and tested physically and mechanically (Oscillating Disk Rheometer, Mooney Viscometer, Shore A hardness, tensile, tear, abrasion and deformation under pressure testing).

**Mechanical Engineer****2005 – 2006**

GEMTAS A.S. (General Engineering Contracting and Trade Inc.), Istanbul, Turkey

- Worked on HVAC installation projects.
- Reviewed and analyzed customer specifications to compile information for bids, prepared proposals.

**PUBLICATIONS**

- M.B. Islier, T.Ando, “Effects of The Temperature Dependence of Free Energy and Viscosity on the Nucleation Kinetics of Supercooled Droplets”, in preparation.
- M.B. Islier, T.Ando, “Prediction and Control of Nucleation Kinetics of Mono-Sized Spherical Copper Droplets,” Supplemental Proceedings Volume 1: Materials Processing and Energy Materials, TMS Annual Meeting, San Diego, CA, pp. 523-530, 2011.
- C. Bagcioglu, E. Altuntas, S. Sen, M.B. Islier, O.G. Ersoy, N.B. Ersoy, T. Nugay, N. Nugay, “Exfoliation Targeted Toughness Enhancement in Polypropylene-blend-montmorillonite Nanocomposites,” *Polymer International*, Vol. 57, No. 12, pp. 1395-1403, 2008.
- M.B. Islier, A.A. Islier, “Manifold Design by Random Search, ”*Muhendis ve Makina*”, Vol. 46, No. 547, pp. 28-38, 2005.

**RESEARCH INTERESTS**

- Powder metallurgy, materials characterization, mechanical behavior of materials
- Polymer engineering, HVAC engineering
- Nanotechnology, nanostructured materials

**COMPUTER SKILLS**

Familiar with MATLAB, MathCAD, AutoCAD, SolidWorks