

Alborz Amirsadeghi

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- Objective** To apply to obtain a summer internship in the field of Material Science and Engineering.
- Education**
- Louisiana State University (LSU), Baton Rouge, LA.
Doctorate of Philosophy, Mechanical Engineering. 6/2008-present
Concentration: Characterization and reduction of demolding force in Ultra Violet Nano-imprint Lithography.
University of Tehran, Tehran, Iran.
Master's of Science, Metallurgy and Materials Engineering. 9/2004-9/2006
Concentration: Surface melting and surface alloying of austempered ductile iron by tungsten inert gas (TIG) process to improve wear resistance.
Iran University of Science and Technology. Tehran, Iran.
Bachelor's of Science, Metallurgy and Materials Engineering, 9/1998-6/2003
Concentration: Kinetic of austenitic transformation in ductile iron.
- Professional Experience**
- Worked as a heat treatment engineer at Imin-Josh-Sanaat Inc., Iran. 11/2006-6/2007.
- Performing annealing and case hardening on mild and stainless steel components.
 - Performing carbonization and nitriding on mild steel components.
 - Austempering of ductile iron crank shafts.
- Worked as an intern at Chauffagekar factory (Manufacturer of cast iron Boilers) in Tehran. 6/2003-9/2003.
- Contribution in the design of a Gating system for cast iron boiler component.
- Teaching Experience**
- TA of the Course "Introduction to Materials Science" at Louisiana State University, Fall 2008.
- Helped the teacher with a class of 42 undergrad students through homework and exam grading as well as recitations.
- Instructor of the Lab "Materials Engineering" at Louisiana State University, spring 2009.
- Taught a lab of 12 junior undergrad students.
- TA of Heat Treatment of Metals at University of Tehran, Spring 2006.
- Grading and lab instruction of 38 undergrad students.
- Publications**
- A. Amirsadeghi**, M. H. Sohi, "Comparison of the influence of molybdenum and chromium TIG surface alloying on the microstructure, hardness and wear resistance of ADI", journal of Materials Processing Technology 201, 2008, 673–677.
- A. Amirsadeghi**, M. H. Sohi, SF Kashani Bozorg "Effects of TIG Surface Melting and Chromium Surface Alloying on Microstructure, Hardness and Wear Resistance of ADI", Journal of Iron and Steel, International, 2008, 15 (4), 86-94.
- M. Heydarzadeh Sohi, M. Nili Ahmadabadi, A. Bahrami Vahdat and **A. Amirsadeghi**, "Evaluation of the Role of Alloying Elements in Austemperability of Heavy Section Ductile Iron", Advanced Materials Research Vols. 83-86 (2010) pp 481-487.
- A. Amirsadeghi**, Sh. Kheirandish, P. Abdollahi, "Evaluation of the Kinetic of Austenite Formation in Pearlitic Ductile Iron", Iranian Metallurgical Engineers Journal, No. 18 (2004), pp.45-49.

A. Amirsadeghi, J. Lee, S. Park, “Influence of Resist Composition on Adhesion and Demolding Force in UV Nano-Imprint Lithography”, Applied Physics A (Submitted July 2010).

A. Amirsadeghi, J. Lee, S. Park, “Shrinkage stress in UV-NIL and the effect of resist formulation”, (In communication).

A. Amirsadeghi, J. Lee, S. Park, “An Experimental Approach to Measurement and Reduction of Demolding Force in UV-Nanoimprint Lithography”, Proceedings Electron, Ion and Photon Beam Nanofabrication (EIPBN) conference, USA, AK, 2010.

A. Amirsadeghi, J. Lee, S. Park, “Dependence of demolding force on resist composition in UV-NIL”, Proceedings NSTI, USA, California, 2010.

S. Park, Z. Song, L. Brumfield, **A. Amirsadeghi, J. Lee**, “Demolding temperature in thermal Nano-imprint lithography”, Applied Physics A, Published online 23 April 2009.

B. Farshchian, **A. Amirsadeghi, S. Park**, “Fabrication of Nanostructures on Curved Surfaces Using PDMS Stamp”, Proceedings Nanotech 2009 Conference and Expo, Houston, TX.

Lab Equipment Experience

Characterization tools: Scanning electron microscopy (SEM), X-Ray spectroscopy, Metallography, optical microscopy and image analysis, Atomic force microscopy (AFM), Fourier Transform Infrared spectroscopy (FTIR).

Mechanical proprieties: Hardness (Vickers, Brinell, Rickwell C,B), Tensile test, 3 and 4 point Bending test, Compression test, Charpy and Isod impact test, Fatigue (Bending, torsion), Wear test (Pin on disk, Pin on Wheel), Nanoindentation, Dynamic mechanical analyzer (DMA).

Metrology: Profilometer (optical and mechanical), Atomic force microscopy

Coating: Physical vapor deposition (PVD), Chemical vapor deposition (CVD), Electroplating, Tungsten inert gas (TIG) surface melting and alloying.

Clean room facilities: Clean room certified user at CAMD (Center for Advanced Microstructures and Devices), Spin-coater, Hot plate, Photolithography, Thermal and Ultra Violet Nano-imprint Lithography (NIL).

Familiar with: Gas, Electric and tungsten inert gas (TIG) welding processes, non destructive tests (die inspection, electromagnetic particles, Ultra sonic, X-ray and Gamma ray), corrosion phenomenon, X-ray Photon Spectroscopy (XPS) and Transmission Electron Microscopy (TEM).

Computer Skills

Proficient with Auto-CAD, Sigmaplot and M.S Office.
General knowledge of Ansys and Matlab.

Relevant Graduate Course Work

LSU: Thermodynamics of Solids, Defects, Deformation and Diffusion, Nanotechnology, Microfabrication, Stress Analysis.

Chalmers University, Sweden (as an exchange student): Advanced Engineering Metals, Materials Characterization and Failure Analysis.

University of Tehran: Advanced Phase transformation, Advanced Solidification, Advanced Fatigue, Advanced Metal Casting Techniques, Non destructive testing methods, Advanced Surface Coating and Engineering, Composite Materials

Affiliations

Student Advantage member of American Society for Materials (ASM)
Member of Materials Research Society (MRS).
Member of Golden Key, International Honor Society.

Honors

Best presentation award in Mechanical Engineering, Louisiana State University, 2010.
Travel award from EIPBN conference, Anchorage, Alaska, 2010.
Ranked 3rd on Louisiana State University PhD qualifying exams, 2009.
Honor graduate of University of Tehran, 2008.

Activities

Volunteer worker during Hurricane Gustav, Baton Rouge, LA, 2008.
Charitable contributor to American Red Cross, Child and Make-a-Wish Foundations.

Contribution to 1st International Congress on Nanoscience and Nanotechnology (ICNN), 2006. In charge of international invited speakers.

Ruling member of student interest board, Iran University of Science and Technology, 2002-2003.

Member of SAIPA youth Soccer Team, Iran 1999-2001.