

# Arturo J. Mateos

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5522 Chase Harbor  
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## EDUCATION

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### Texas A&M University

Bachelor of Science in Mechanical Engineering  
Minor in Mathematics

**Graduation: May 2013**

## EXPERIENCE

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### Polymer NanoComposites Group, Texas A&M University

Research Assistant | Advisor: Jaime C. Grunlan, PhD

College Station, TX

Fall 2010 – Present

- Studying layer-by-layer assembly of nanostructured thin films for flame retardant applications
- Constructed an automated layer-by-layer dip coater from scratch under a \$10,000 budget in 5 months
- Evaluating thermal stability of intumescent coatings according to ASTM standard methods and flammability tests
- Using layer-by-layer assembly of thin films to coat fabric and foams for antflammable behavior
- Working on future publications

### Computational Solid Mechanics Group, California Institute of Technology

Research Assistant | Advisor: Michael Ortiz, PhD

Pasadena, CA

June 2012 – August 2012

- Presented a multivariate piecewise-linear interpolation approach to study the material response of deforming solids
- Defined an approximate variational formulation of nonlinear elasticity by means of piecewise-linear interpolation
- Implementing piecewise-linear and simplicial subdivision methods in MATLAB
- Numerical examples demonstrate the performance of this approach in nonlinear solid mechanics problems

### The Dow Chemical Company

Corrosion and Materials Engineer | Advisor: Keith F. Briegel

Deer Park, TX

May 2011 – August 2011

- Reviewed corrosion rates and predicted an accurate end of life for operating equipment
- Performed multiple failure analyses using metallurgical mounts and microscopy on corrosion/metallurgical failures
- Set up new electrochemical corrosion, electropolishing, and electroetching lab equipment
- Collaborated in plant tours for interns from other Dow chemical plants

### Computational Mechanics and Materials Group, Cornell University

Research Assistant | Advisor: Derek H. Warner, PhD

Ithaca, NY

May 2010 – August 2010

- Performed atomistic simulations of dislocation-precipitate interactions in Al-Cu alloys to predict a resultant increase in alloy strength
- Studied the mechanisms and critical shear stress values required for a screw dislocation to overcome Guinier-Preston (GP) zones
- Designed materials by atomistic modeling using angular dependent EAM potentials
- Published results in *Scripta Materialia* (see *Publications* section below)

### Formula SAE Team, Texas A&M University

Chassis Team

College Station, TX

August 2012 – May 2013

- Designing a Formula SAE racecar to successfully compete and win Formula SAE competition
- Building a \$1MM racecar that has the potential to be a production item for a manufacturing company
- Assembling a lightweight body and chassis to meet Formula SAE regulations

## LEADERSHIP AND INVOLVEMENT

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<b>American Society of Mechanical Engineers, ASME</b>	<b>2009 – Present</b>
<i>International Liaison (2012 – Present)</i>	
<ul style="list-style-type: none"><li>• Provides a link between our student section and the student section in Texas A&amp;M Qatar</li><li>• Organizes events with fellow exchange students from Qatar and the Mexico Exchange Program</li></ul>	
<i>Senior Liaison (2011 – 2012)</i>	
<ul style="list-style-type: none"><li>• Communicate ASME's vision to participate/explore the meaning of mechanical engineering not taught in class</li><li>• Increase senior membership by informing seniors of company visits and job opportunities</li></ul>	
<i>Sophomore Liaison (2010 – 2011)</i>	
<ul style="list-style-type: none"><li>• Represented mechanical engineering sophomores and improved the relationship between students and ASME</li><li>• Informed sophomores of ASME benefits and notified them of a company's interest in mechanical engineers</li></ul>	
<b>Society of Automotive Engineers, SAE</b>	<b>2009 – Present</b>
<i>Events Coordinator (2010 – 2011)</i>	
<ul style="list-style-type: none"><li>• Organized trips to engineering companies such as FMC Technologies, Lockheed-Martin, Ferrari of Houston</li><li>• Organized social events to increase membership and promote Texas A&amp;M Racing</li></ul>	
<b>National Mechanical Engineering Honor Society, Pi Tau Sigma</b>	<b>2010 – Present</b>
<b>National Engineering Honor Society, Tau Beta Pi</b>	<b>2011 – Present</b>
<b>Phi Kappa Phi Honor Society</b>	<b>2011 – Present</b>

## SKILLS

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- MATLAB, LabVIEW, LAMMPS Code, SolidWorks
- Microsoft Office, LaTeX, Photoshop, EES, AutoCAD
- C/C++, Unix, Linux, Basic, Vi/Vim editor
- SEM Microscopy, Stereo Microscopy
- Electropolishing, Electroetching, Metallurgical Mounting
- Fluent in English and Spanish

## HONORS

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<b>Texas A&amp;M Research Opportunities for Engineers (ROE) Scholars</b>	<b>Fall 2012 – Spring 2013</b>
<b>Excellence Award in Engineering (for Academic Standing)</b>	<b>Spring 2011</b>
<b>Texas A&amp;M Mechanics Scholar</b>	<b>Fall 2009</b>
<ul style="list-style-type: none"><li>• Awarded one of 25 Mechanics Scholar Certificates out of 300+ students</li><li>• Certificate demonstrates high achievement in Physics 218: Mechanics</li></ul>	
<b>National Society of High School Scholars Academic Paper Award</b>	<b>Fall 2009</b>
<ul style="list-style-type: none"><li>• Authored research paper on Space Debris and its Effect on Spacecrafts</li><li>• 22-page report on the selection process, design, and characteristics of the materials used to protect space vehicles from orbital debris</li><li>• One of 25 awards out of 1500+ entries</li></ul>	

## PUBLICATIONS

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C.V. Singh, **A.J. Mateos**, and D.H. Warner. 2011 "Atomistic simulations of dislocation-precipitate interactions emphasize importance of cross-slip." Scripta Materialia 64(5): 398-401.

## INTERESTS

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Materials behavior, mechanics of materials, , solid mechanics, deformation, materials imperfections, nanotechnology