

# Komal Syed

*U.S. Citizen*

## Education

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**Ph.D. Materials Science & Engineering**  
University of California, Irvine

**Expected: June 2020**

**B.S. Materials Science & Engineering**  
University of Maryland, College Park  
**GPA: 3.73**

**December 2012**

## Fellowships & Awards

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- Honorable Mention – NSF Graduate Research Fellowship Program **2016**
- PhD Provost Fellowship – University of California, Irvine **09/2015 - present**
- Diversity Recruitment Fellowship – University of California, Irvine **09/2015-12/2015**
- National Institute of Standards & Technology (NIST)  
NIST-ARRA (American Recovery and Reinvestment Act) Research Fellowship **8/2012 - 1/2013**  
Summer Undergraduate Research Fellowship **5/2012 - 8/2012**
- NSF funded ACCESS Engineering Scholarship – Montgomery College, Rockville **2009 - 2012**

## Research Experience

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**Chemical Engineering & Materials Science Department, University of California, Irvine** **1/2016 – present**  
*Graduate Student Researcher*

- Using Transmission Electron Microscopy to study the grain boundary segregation in three-phase ceramic materials
- Investigating the performance of Li-ion batteries using precious metal-doped TiO<sub>2</sub>-B (bronze) thin films as the anode material

**Maryland NanoCenter, University of Maryland, College Park, MD** **1/2013 - 1/2014**  
*Research Staff*

- Worked on developing a novel technique for quantifying the conformality of atomic layer deposition (ALD)
- Designed and fabricated conformality test structures using photo-lithography in a clean-room facility
- Analyzed the effects of different ALD process parameters on conformality for nano-device applications

**Material Measurement Laboratory, NIST, Gaithersburg, MD** **5/2012 - 1/2013**  
*Research Fellow (NIST-ARRA Research Fellowship)*

- Analyzed crystallographic texture of High-Strength Low-Alloy steel using Electron Backscatter diffraction (EBSD)
- Designed experimental methodology to determine necessary parameters for accurate sampling of material texture
- Correlated results of EBSD and neutron diffraction to compare independent crystallographic texture measurements

*Research Fellow (NSF REU Fellowship)*

- Performed statistical analysis on the crystallographic texture of undeformed, mild steel samples
- Integrated Monte Carlo Simulation technique in Mtex, Quantitative Texture Analysis toolbox, in MATLAB
- Developed method to quantitatively determine the uncertainty in orientation distribution functions (ODFs)

**Capstone Design Project, University of Maryland, College Park, MD****1/2012 - 5/2012***Research Team Member*

- Worked with a team to design a thermoelectric device using electrospun conductive polymer fibers
- Used polymer mixture as a low-cost alternative to expensive bismuth telluride for the thermoelectric
- Determined that minimizing the fiber diameter improves thermoelectric performance

**Materials Testing Laboratory, University of Maryland, College Park, MD****5/2011 - 8/2011***Summer Researcher*

- Analyzed the mechanisms and kinetics of twinning in Ti-alloys
- Prepared Ti-alloy samples for testing and used SEM for characterization
- Investigated mathematical relation between twin growth rate in Ti-alloys and oxygen diffusion

## Skills

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**Software** : OriginLab, MATLAB, AutoCAD, Origin, 3DS Max, HKL Channel 5 (EBSD)**Equipment** : Rigaku SmartLab X-ray Diffractometer, PARSTAT MC Multichannel Potentiostat, Hitachi S-3400/Jeol 6400 Scanning Electron Microscopes, Woollam M-2000D Ellipsometer, Beneq TFS200 ALD, Photolithography**Languages** : Fluent in Urdu and Hindi

## Teaching Experience

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**Mathnasium, Irvine, CA****3/2014 - present***Math Instructor*

- Provide both one-on-one and small group-based instruction to students up to high school level
- Assist with planning and developing math curriculum for individual students
- Assign specific worksheets and tests based on grade-level to improve students' performance

**Math & Science Center, Montgomery College, Rockville, MD****9/2008 - 7/2010***Math Tutor – Certified by College Reading & Learning Association (CRLA)*

- Tutored math courses including Calculus II to college students
- Worked at the circulation desk to help students check-out books, calculators, and CDs for coursework

## Publications

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Creuziger, A., **K. Syed**, and T. Gnäupel-Herold. "Measurement of Uncertainty in Orientation Distribution Function Calculations." *Scripta Materialia* 72-73 (2014): 55-58