

Nadjia Motley
Fourth Year Graduate Student

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Materials Science & Engineering

EDUCATION

University of California, Irvine, CA
M.S. Materials Engineering
Ph.D. Materials Engineering
University of Maryland, College Park
B.S. Bioengineering

Sept 2016 - Present
Received: May 2018

Aug 2012 - May 2016
Received: May 2016

INTEREST: Thermal Transport, Ceramic and Semiconductor Materials, Material Characterization

AWARDS AND HONORS

GEM Fellow (2015-Present) UC Irvine Diversity Recruitment Fellowship Award (2016 – Present), Competitive Edge Fellowship (2016), Louis Stokes Alliance for Minority Participation Summer Researcher (2014), University of Maryland Honors College (2012 - 2016), Banneker/Key Scholarship Recipient (Aug 2012 - May 2016), Premannum Honors Society (Aug 2012 - May 2016), National Society of Black Engineers Honors (Dec 2012 – Present)

TECHNICAL EXPERIENCE

The Boeing Company – Seattle, WA – Failure Analysis Intern June 2019 – Sept 2019

- Performed failure analysis on systems, subassemblies, components and consumables related to early life failures and full scale fatigue examinations.
- Performed and evaluated microstructural analysis, using light optical microscopy, and mechanical testing, using Macro/Micro Vickers and Rockwell hardness methods.
- Identified and suggested corrective action plans for actual and potential causes of part failure through root cause analysis and advanced metrology tools
- Created detailed reports on investigative findings and presented to cross-functional audience
- Analyzed and wrote full technical report summarizing additively manufactured aluminum initiatives

Mecartney Research Group– University of California, Irvine May 2018 – Present

- Studied how thermal conductivity of bulk ceramic single systems are affected by grain size and interfacial interactions.
- Optimized fabrication procedures to obtain high density samples for LaPO₄ Monazite, via conventional oven sintering.
- Designed three omega data acquisition system and automated raw data processing, using MATLAB software, to extrapolate temperature dependent thermal conductivity of bulk ceramic samples.
- Presented findings at 2019 International Thermal Conductivity Conference.
- Demonstrated advanced skills in ceramic processing and materials characterization, including bulk ceramic grain reduction techniques, flash sintering, conventional sintering, polishing, scanning electron microscopy (SEM), dispersive x-ray spectroscopy, electron backscatter diffraction.

The Lee Group – University of California, Irvine Feb 2017 – May 2018

- Investigated thermal and thermoelectric transport mechanisms in for doped silicon nanowires, silicide nanowires, and quinoline microneedles for temperature ranges 14-750K.
- Developed MATLAB program to evaluate the effect of phonon scattering events on temperature dependent thermal conductivity of novel silicon nanowire composite with nickel nano-inclusions.

- Published article and presented theoretical findings at 2018 ITherm conference
- Skills obtained include SEM microscopy, metal assisted chemical etching in clean room facilities electronic circuit analysis, data analysis, and electron beam lithography.

National Eye Institute – National Institute of Health

Aug 2015 - May 2016

- Collaborated in team of 5 to conceptualize, design, and build a cryopreserved stem cell containment system that maintains sterility, defrost media, exchange media, and control temperature.
- Utilized Creo Parametric 3.0 to create computer aided design for final two prototypes.
- Developed 100-line code and electronic circuit for Arduino powered automated heating and media replacement mechanism.

Functional Macromolecular Laboratory – University of Maryland

Aug 2015-June 2016

- Fabricated and optimized iron/silver polymer nanoparticle composite production in order to design flexible electronics.
- Utilized PDMS in order to cross-link nanoparticles to create polymer matrix witch possess high dielectric and magnetic properties.
- Efficiently processed client nanoparticle samples, developed unique polymer matrices, and shipped final results to collaborators.

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WORK HISTORY

University of California, Irvine

March 2017 - Present

May 2017-Present: Office of Access and Inclusion Program Coordinator

- Organized summer programs for minority high school and community college to engage in mentorship hands on engineering projects with a focus on design and programming activities.
- Served as university recruiter at major diversity conferences and organized engagement events for prospective graduate students.

LEADERSHIP AND SERVICE

Broadcom Foundation

Nov 2018 – April 2019

2019: International Student Research Workshop Coordinator

- Collaborated with international partners to organize five day interdisciplinary student research workshop in Hsinchu, Taiwan.
- Coordinated conference and travel logistics for students and faculty members traveling for the United States.
- Lead team of six to innovate solutions for advancement smart cities and received the Innovative Design Award.

CHMSE Graduate Student Association

June 2017 – May-2018

2017-2018: Service Chair

- Organized 5 service events to increase community engagement for chemical and materials engineering graduate students

Big Brothers, Big Sisters Orange County

June 2017 - Present

Delta Sigma Theta Sorority, Incorporated

April 2016 - Present

- Mentor in Dr. Betty Shabazz Delta Academy; providing participants ages 11-14 opportunities to learn about sisterhood, service, STEM careers, and leadership.

National Society of Black Engineers (NSBE)

Aug 2012 - Present

2015-2016: Active Chapter Member

- Robotics team coach for local NSBE to help students prepare for National Robotics Competition.

2014-2015: Region II Pre-College Initiative Chair

- Planned and Organized 3-day Pre-College Initiative Conference for the 2014 Region II Conference; 300 student attendees.