

TYLER GUIN

MATERIALS RESEARCH SCIENTIST

EDUCATION

Texas A&M University, College Station, TX

Ph.D Chemical Engineering, expected defense Oct. 2015

Thesis: Improving Layer-by-Layer Assembly for Superior Flame Retardant and Gas Barrier Nanocoatings under Dr. Jaime Grunlan

Auburn University, Auburn, AL

B.S. Chemical Engineering, May 2012

B.A. Chemistry, May 2012

National Merit Scholar, Spirit of Auburn Scholar, Outstanding Chemistry Student 2008, 2009

WORK AND LEADERSHIP EXPERIENCE

TAMU Polymer Nanocomposites Lab, College Station, TX

Research Assistant, 2012-present

Led multiple research projects for Fortune 500 corporations; developed and delivered flame retardant, hydrophobic/philic, ultra-high barrier, anti-fouling and UV protective nanocoating solutions; guided development of solutions from concept to commercial production.

Mentored 3 undergraduate researchers resulting in 4 publications; communicated bi-weekly research status updates to clients; presented research proposals to prospective clients; managed project budgets; performed additional duties as a teaching assistant.

Camp Lumpkin – Boy Scout Camp, LaGrange, GA

Director of Ecology, May 09 - August 09

Managed a team of 4 science teachers to teach introductory science principles to 250 high school students.

Alpha Phi Omega - Delta Chapter, Auburn, AL

Eagle Scout Service Fraternity, 2009-2012

Served in a variety of roles, including President; made diversity a priority and recruited first female members; elected as National Convention Delegate, 1 of 12 in the nation to serve on the National Committee and received a National Commendation for leadership.

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PUBLICATIONS AND PATENTS

- Guin T.; Stevens B.; Krecker M.; D'Angelo J.; Humood M.; Polycarpou A.; Grunlan J. "Self-healing gas separation graphene oxide thin films with automatic damage detection," To be submitted.
- Guin T.; Holder K.; Krecker M.; Lupez S.; Grunlan J. "Pilot-scale through-flow multilayer thin film applicator," To be submitted.
- Guin T.; Krecker M.; Milhorn A.; Hagen D.; Stevens B.; Grunlan J. "Super-thick nanobrick wall thin films: superior flame retardance and gas barrier with fewer layers," Accepted to *Advanced Materials Interfaces*.
- Guin T.; Cho J.; Xiang F.; Ellison C.; Grunlan J. "Water-based melanin multilayer thin films with broadband UV absorption," *ACS Macro Letters*, **2015**, *4*, 335. Featured in C&EN News.
- Guin T.; Krecker M.; Hagen D.; Grunlan, J. "Thick growing multilayer nanobrick wall thin films: super gas barrier with few layers," *Langmuir*, **2014**, *30*, 7057.
- Guin T.; Krecker M.; Milhorn A.; Grunlan J. "Maintaining hand and improving fire resistance of cotton fabric through ultrasonication rinsing of multilayer nanocoating," *Cellulose*, **2014**, *21*, 3023.
- Priolo M.; Holder M.; Guin, T.; Grunlan J. "From metallization to nanobrick walls: super gas barrier films via layer-by-layer assembly." Accepted to *Macromolecular Rapid Communications*.
- Guin T.; Grunlan J. Provisional Patent. Improved hand for nanocoated fabric, **2014**.
- Guin T.; Grunlan J. Provisional Patent. Thicker nanofilms with fewer depositions, **2014**.

PRESENTATIONS

- Thick growing multilayer nanobrick wall thin films, ACS, August **2014**.
- Maintaining hand and improving fire resistance of cotton fabric through ultrasonication rinsing of multilayer nanocoating, ACS, August **2014**.
- Phosphorous-filled nanobrick wall eliminates polyurethane melt dripping, ACS, August **2014**.
- Graphene oxide-based thin films for gas barrier and hydrogen separation, Layer-by-layer, June **2014**.

SELECTED SKILLS AND TECHNIQUES

Pilot Process Line Development, Flame Testing (ex. UL 94), Scanning Electron Microscopy, X-ray Photoelectronic Spectroscopy, FTIR, UV-vis spectroscopy, Ellipsometry, Quartz Crystal Microbalance, Atomic Force Microscopy, Thermogravimetric Analysis, Dynamic Mechanical Analysis, Matlab, VBA, Arduino, Prototyping