

# Morgan A. Priolo

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## **EDUCATION:**

- May 2012                      TEXAS A&M UNIVERSITY                      College Station, TX  
Ph. D. in Materials Science & Engineering
- Dissertation Topic: "Layer-by-Layer Assembly of Nano Brick Wall Ultrathin Gas Barrier Films"
- May 2006                      UNIVERSITY OF TEXAS – PAN AMERICAN                      Edinburg, TX  
B.S. in Physics and Mathematics

## **RESEARCH**

### **EXPERIENCE:**

- July 2008                      TEXAS A&M UNIVERSITY                      College Station, TX  
- May 2012                      *Graduate Research Assistant [Advisor: J. C. Grunlan]*
- Studying the gas barrier behavior of polymer-clay nanocomposite thin films via layer-by-layer assembly
  - Creating super gas barrier thin films for a variety of packaging solutions
  - First author of three refereed journal papers, to date, on graduate research
  - Research highlighted in January 11, 2011 edition of *C&EN Magazine*
  - Fully trained to use materials characterization instruments such as: AFM, TEM, Ellipsometry, Reflectometry, UV-Vis, ZetaPALS, QCM, TGA, and DSC
  - Trained and supervised five undergraduate research assistants
- August 2006                      TEXAS A&M UNIVERSITY                      College Station, TX  
- June 2008                      *Graduate Researcher [Advisor: M. B. Weimer]*
- Extensive use of an ESI Model 44 Laser Trimming System
  - STM tip fabrication by electrochemical etching of Pt/Ir wire
  - Ultra high vacuum preparation and silicon wafer handling
  - Photomicrography using Differential Interference Contrast Microscopy
  - Scientific instrument making using a lathe, mill, and steel heat treatment
- May 2005                      UNIVERSITY OF TEXAS – PAN AMERICAN                      Edinburg, TX  
- May 2006                      *Undergraduate Researcher [Advisors: J. S. Qualls and Y. Lin]*
- Torque magnetometer production for materials characterization from 1.5 to 400 Kelvin in magnetic fields up to 17 Tesla
  - Laser beam reflection and manipulation hardware assembly

## **TEACHING**

### **EXPERIENCE:**

- August 2006                      TEXAS A&M UNIVERSITY                      College Station, TX  
- June 2008                      *Teaching Assistant*
- College Physics – Mechanics and Electricity & Magnetism
  - Scientific Instrument Making

**PRESENTATIONS:**

1. "Transparent nano brick wall super gas barrier polymer-clay assemblies," by **M. A. Priolo**, D. Gamboa, K. M. Holder, and J. C. Grunlan, presented at the 2011 MRS Fall Meeting & Exhibit in Boston, MA on November 28, 2011
2. "Ultrathin nano brick wall super gas barrier quadlayer assemblies," by **M. A. Priolo**, D. Gamboa, K. M. Holder, and J. C. Grunlan, presented at the 242<sup>nd</sup> American Chemical Society National Meeting & Exposition in Denver, CO on August 29, 2011
3. "Super gas barrier of all-polymer layer-by-layer assemblies," by Y. Yang, M. Haile, Y. Park, F. A. Malek, **M. A. Priolo**, J. C. Grunlan, presented at the 242<sup>nd</sup> American Chemical Society National Meeting & Exposition in Denver, CO on August 30, 2011
4. "Clay-polymer super gas barrier thin films via layer-by-layer assembly," by **M. A. Priolo**, D. Gamboa, K. M. Holder, and J. C. Grunlan, presented at the 8<sup>th</sup> National Graduate Research Polymer Conference at the University of North Carolina at Chapel Hill on June 9, 2010.
5. "Oxygen barrier of nano brick wall thin films," by **M. A. Priolo**, D. Gamboa, A. Ham, J. C. Grunlan, presented at the 85<sup>th</sup> Annual AAAS SWARM Division Meeting at Rice University, in Houston, TX, on April 8, 2010.
6. "Super gas barrier thin films via layer-by-layer assembly of polyelectrolytes and clay," by **M. A. Priolo**, D. Gamboa, and J. C. Grunlan, presented at the American Physical Society March Meeting 2010 in Portland, OR on March 16, 2010.
7. "Tunable gas permeability of polymer-clay nano brick wall thin films," by **M. A. Priolo**, D. Gamboa, and J. C. Grunlan, presented at the 238<sup>th</sup> American Chemical Society National Meeting & Exposition in Washington, DC on August 20, 2009.

**PUBLICATIONS:**

1. **Priolo, M. A.**; Holder, K. M.; Greenlee, S. M.; Grunlan, J. C.; Super gas barrier nano brick wall films via layer-by-layer assembly with large aspect ratio vermiculite. In preparation
2. **Priolo, M. A.**; Holder, K. M.; Grunlan, J. C.; Influence of clay layer spacing on the barrier of nano brick wall thin films. In preparation
3. Sojoudi, H.; **Priolo, M. A.**; Granstrom, J.; Ahumada, M.; Bynes, M.; Grunlan, J. C.; Graham, S.; A complimentary barrier performance pre-screening method using a P3HT thin film optical transmission test. In preparation.
4. Laufer, G.; **Priolo, M. A.**; Kirkland, C.; Grunlan, J. C.; High oxygen barrier, chitosan-based thin films for food packaging. Submitted to *Green Chemistry*.
5. **Priolo, M. A.**; Holder, K. M.; Gamboa, D.; Grunlan, J. C.; Influence of clay concentration on gas barrier of clay-polymer nano brick wall thin film assemblies. *Langmuir*, **2011**, *27* (19), 12106-14.
6. **Priolo, M. A.**; Gamboa, D.; Holder, K. M.; Grunlan, J. C., Super gas barrier of transparent polymer-clay multilayer ultrathin films. *Nano Letters* **2010**, *10* (12), 4970-4974.
7. Gamboa, D.; **Priolo, M. A.**; Ham, A.; Grunlan, J. C., Note: Influence of rinsing and drying routines on growth of multilayer thin films using automated deposition system. *Review of Scientific Instruments* **2010**, *81* (3), 036103.
8. **Priolo, M. A.**; Gamboa, D.; Holder, K. M.; Grunlan, J. C., Super oxygen barrier of polymer – clay nano brick wall thin films, SAMPE 2010 Technical Conference Proceedings: New Materials and Processes for a New Economy, Seattle, WA, May 17-20, 2010. Society for the Advancement of Material and Process Engineering, CD-ROM
9. **Priolo, M. A.**; Gamboa, D.; Grunlan, J. C., Transparent clay-polymer nano brick wall assemblies with tailorable oxygen barrier. *ACS Applied Materials & Interfaces* **2010**, *2* (1), 312-320. **This paper was featured in the Science and Technology Concentrates of C&EN (11 January 2010).**