

Michele Lee

4080 Via Marisol Unit # 337, Los Angeles, CA 90089
(623) 826-1713 | Lee853@usc.edu | www-scf/usc.edu/~lee853

Education

- University of Southern California** 2011 – 2017
Ph.D., M.S. in Materials Science
Thesis: Optically Triggered Smart Polymers for Environmental Monitoring
- Massachusetts Institute of Technology** 2006 – 2010
B.S. in Materials Science and Engineering

Professional Experience

- Armani Research Lab, USC** *Ph.D. Student* Aug 2011 – Present
- Synthesized and characterized novel UV-responsive “smart” polymers.
 - Developed a predictive model for polymer photoresponse kinetics and published results in the highest cited journal in original polymer chemistry research.
 - Invented and fabricated a wearable, polymer-based UV light sensor for the prevention of skin cancer. Currently hold a provisional patent based on this technology.
- E Ink Corporation**, *Research Assistant* Summer 2009
- Designed metal oxide nanoparticles with controllable travel speeds through solution.
 - Worked as only student on exploratory team to develop full color E Ink displays.
- US Army Rodman Materials Research Lab**, *Research Assistant* Summer 2008
- Utilized spectroscopy and microscopy to characterize novel anti-MRSA polymer additives.
 - Synthesized 12 different block copolymer polyurethanes for high impact helmet applications.

Awards & Leadership

- Best Research Presentation at the USC Departmental Symposium** 2016
- Awarded by an invited panel of seven external judges for the best research presentation at the annual department symposium.
- USC Provost’s Ph.D. Fellowship** 2011 – 2015
- Awarded to top 5 students in the Department’s incoming class.
- MIT Society of Undergraduate Materials Scientists**, President 2008 - 2010
- Led recruitment efforts for the department, resulting in 50% increase in undergrad class size. Worked with Faculty Curriculum Committee to improve department curriculum.

Technical Skills

Chemical & Structural analysis: Gel Permeation Chromatography, Spectroscopy (NMR, FTIR/ATR, Raman, XRD, UV-Vis, Fluorescence, GC/MS)

Surface analysis: Ellipsometry, XPS, Microscopy (SEM/EDX)

Chemical synthesis: Atom Transfer Radical Polymerization (ATRP), Air-sensitive reaction techniques, Click Chemistry (CuAAC), Compound purification techniques (Flash chromatography, Thin Layer Chromatography, Extractions)

Peer-Reviewed Publications and Conference Proceedings

Flexible UV Exposure Sensor Based on UV Responsive Polymer. **M.E. Lee** and A.M. Armani, *ACS Sensors*, 2016. DOI: 10.1021/acssensors.6b00491

Portable, Low-power Diagnostics based on Integrated Photonics and Responsive Materials. A. M. Armani, D. Amchin, V. Diep, L. Fang, E. Gungor, A. Hudnut, B. Hudnut, **M. Lee**, S. McBirney, S. Soltani. *Proc. SPIE 9930, Biosensing and Nanomedicine IX*, 99300P (2016).

Photocleavage of Poly(methyl acrylate) with Centrally Located o-Nitrobenzyl Moiety: Influence of Environment on Kinetics. **Michele E. Lee**, Eda Gungor, and Andrea M. Armani. *Macromolecules* 2015 48 (24), 8746-8751.

Optically active silica and polymeric materials for microcavity lasers and sensors. A. M. Armani, **M. Lee**, A. Kovach, E. Gungor, K. Kuo, V. Diep. *Proc. SPIE 9343, Laser Resonators, Microresonators, and Beam Control XVII*, 93430 (2015).

Challenges in resonant cavity biosensor design: collection efficiency and specificity. A. M. Armani, S. Mehrabani, V. Sun, S. McBirney, R. M. Hawk, E. Gungor, **M. Lee**. *Proc. SPIE 8960, Laser Resonators, Microresonators, and Beam Control XVI*, 89600F (2014).

Webinars & Conference Presentations

The Chemistry of Power Free Wearable Sensors: Smart Polymeric Materials. **Michele Lee** and Andrea Armani. American Chemical Society Webinar Series: Materials Science. 2016.

Intelligently designed UV-cleavable polymers for preventing sun-induced skin damage. **M. E. Lee**, E. Gungor, M. Siron, A. M. Armani. American Chemical Society Fall National Meeting, 2016.

Patents

Photochemical UV Sensor with Power-Free Operation. A.M. Armani, **M.E. Lee**, E. Gungor, X. Shen. Provisional patent filed 2016. (Utility in progress)