



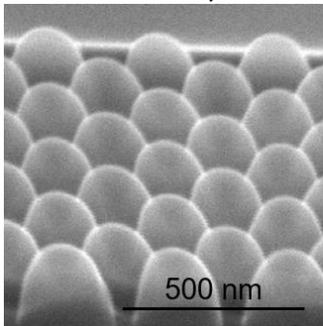
## Research Experience for Undergraduates (REU) Opportunities

Smart Material Solutions, Inc. will host two full-time, undergraduate students for 10-week, paid internships in Summer 2018. REU participants must be U.S. citizens, U.S. nationals, or permanent residents of the United States.

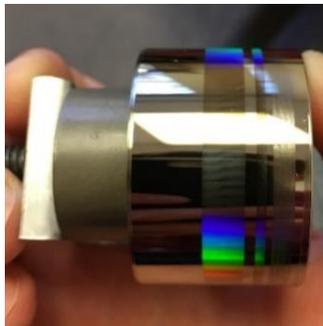
### Company Description

Smart Material Solutions, Inc. (SMS) is a small NC State startup in Raleigh, NC that is developing an advanced nanomanufacturing process called *nanocoining*. The patented process can seamlessly nanopattern drum molds for roll-to-roll manufacturing hundreds of times faster than competing technologies like electron-beam lithography. This enables nanopatterning that was previously feasible for only small, academic experiments to be applied on the industrial scale. Nanocoining opens the door for nanostructured surfaces with unique optical and wetting properties to be applied to a variety of commercial products including OLEDs, biosensors, wire-grid polarizers, solar panels, and windows.

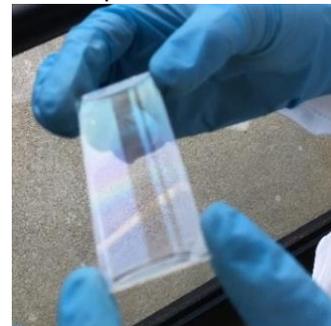
**Nanostructures**  
Fabricated by SMS



**Nanostructured Drum Mold**  
Indented at SMS



**Anti-Reflective Film**  
Imprinted at SMS



### Internship 1: Simulations of optical properties

This student will perform finite different time domain (FDTD) simulations to model and optimize the optical properties of nanostructures. The intern will model anti-reflective coatings as well as light-extraction features for OLED displays and solid-state lighting. This student will also be trained in scanning electron microscopy (SEM) and atomic force microscopy (AFM). Students with a background in optics, modeling, physics, electrical engineering, or a related field are encouraged to apply.

### Internship 2: Fabrication, characterization, and lamination of nanostructured films

This intern will imprint nanostructures into polymer films and characterize their optical and wetting properties. The student will also laminate nanostructures onto devices such as a solar cell and smartphone. This student will receive training on several characterization techniques including SEM, AFM, and UV-Vis spectroscopy. SMS prefers a student with a background in materials science, chemical engineering, nanotechnology, or a related field.

### How to Apply

Please send resumes to [miller@smartmaterialsolutions.com](mailto:miller@smartmaterialsolutions.com) and specify which internship interests you.