

**Department of Chemical and Materials Engineering
COLLEGE OF ENGINEERING AND APPLIED SCIENCE**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 1, 2010

The Department of Chemical and Materials Engineering is pleased to offer the following research project for the summer of 2010. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

**PROJECT TITLE: Fabrication of Nanoporous Thin Films on Structured Optical
Fibers**

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Project Description

This summer research project is part of our ongoing research program sponsored by the National Science Foundation. The overall goal of the NSF research program is to understand the molecular transport behavior in crystalline materials which have nanometer-scale or sub-nanometer-scale porosity. The summer undergraduate research project will focus on the synthesis of thin films of the nanoporous materials on structured optical fibers to construct micron-sized optical devices. The film synthesis is accomplished by growing porous crystalline thin film in liquid phase precursors. The nanofilm-integrate-fiber optical device will then be used to study the transport behaviors of various molecules in the nanoporous film by a laser refractometry approach. The student working on this summer project will collaborate closely with the graduate students in our laboratory.