

**Science, Math, and Engineering Division
CLERMONT COLLEGE**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 2, 2009

The Science, Math, and Engineering Division is pleased to offer the following research project for the summer of 2009. 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.

CLATHRATE-FORMING SURFACTANTS

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PROJECT DESCRIPTION

My research involves the synthesis and characterization of a novel class of clathrate-forming surfactants. Typical surfactants self assemble to form a fluid micelles and liquid crystals in water while typical clathrate formers induce the self assembly of water into ice-like crystals. I'm attempting to understand the molecular structures that could simultaneously induce surfactant and clathrate self assembly.

The summer research project is part of an ongoing study of phase behavior of aqueous tributylundecylammonium bromide. Students will work with a temperature-controlled, polarizing microscope to observe optical texture as a function of composition and temperature. The purpose of the project is to determine whether there is an overlapping region of micelle or liquid crystal and clathrate formation.