

**Department of Chemistry
COLLEGE OF ARTS & SCIENCE**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 2, 2015

The Department of Chemistry is pleased to offer the following research project for the summer of 2015. 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: Dancing Crystals

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Project Description

One of the greatest challenges of the 21st century is developing sustainable energy to maintain the needs of society. One of the major thrusts has been to harness solar energy as a clean, renewable energy source. Thus, the development of solid-state photodevices is vital for developing sustainable energy, and it requires advanced understanding of the fundamentals of solid-state photophysics and photochemistry. My research group is studying the fundamentals of solid state photochemistry and currently we are investigating the release of N₂ molecules from crystalline naphthaquinone di-azido derivatives. Upon exposure to light the di-azido crystals dance around and release N₂ atoms and we would like to correlate the rate of release or dancing with the crystal packing of the starting material.

A WISE student would spend her summer being trained to synthesize new diazido derivatives and study the mechanism for their photoreactivity using transient spectroscopy and by carrying out product studies. The proposed research would allow the student to become familiar with using various spectroscopic methods, such as NMR, IR and UV absorption.