

**Department of Physics
MCMICKEN COLLEGE OF ARTS AND SCIENCES**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 2, 2009

The Department of Physics 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.

EFFECTS OF ELECTROMAGNETIC FIELDS ON CELL-CELL COMMUNICATION

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Project Description

The objective of this project is to understand how radiation affects communication between live cells using endothelial cells as the test system.

Endothelial cells are known to form capillary networks in vivo in response to changes in different environmental factors, such as pressure and the chemical environment. Our preliminary in vitro studies show that the presence of microwave radiation significantly accelerates the rate at which the capillary networks form, suggesting that the communication between the cells is influenced by the electromagnetic field. The project will further explore the dependence of the network formation rate on frequency and amplitude of the field. Student participants will have the opportunity to learn microwave technology, cell culture methods, and micro fabrication techniques.