

**Department of Chemical and Materials Engineering  
and Department of Mechanical Engineering  
COLLEGE OF ENGINEERING**

**SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE WOMEN**

**APPLICATION DEADLINE: March 1, 2010**

*The Department of Chemical and Materials Engineering and the Department of Mechanical Engineering are 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.*

**Synthesis of Carbon Nanotube Arrays for Spinning Thread**

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**PROJECT DESCRIPTION**

This research is related to the synthesis of high quality Carbon Nanotube (CNT) arrays by Chemical Vapor Deposition (CVD) and spinning them into threads and ribbons. The role of the catalyst design on the substrate surface and their impact on the length of the oriented CNTs will be investigated. The length of the high oriented CNT arrays depends on the substrate design and the nature of the catalyst. Efforts on growing long and spin-able nanotube arrays will be part of this project. Special attention will be given to the characterization of CNT materials by SEM, TEM, and TGA techniques. CNT arrays open up new applications in space and medicine by mitigating the limitations of the powdered “spaghetti type” CNT.