

SCHOOL OF CHEMICAL, BIOLOGICAL & MATERIALS ENGINEERING

And

UNIVERSITY OF OKLAHOMA BIOENGINEERING CENTER

100 E. Boyd, Sarkeys Energy Center, T-335

405-325-5811

The University of Oklahoma

Norman, Oklahoma

2010 – 2011 Seminar Series

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DR. ZHENAN BAO

ASSOCIATE PROFESSOR OF CHEMICAL ENGINEERING

DEPARTMENT OF CHEMICAL ENGINEERING

STANFORD UNIVERSITY

STANFORD, CALIFORNIA

Will present a seminar on

**"SOLUTION DEPOSITED SELF-SORTED,
ALIGNED CARBON NANOTUBE NETWORKS
FOR ELECTRONIC DEVICES"**

For single walled carbon nanotubes to find use in electronics there is a need to efficiently separate them by electronic type, and align them to ensure optimal and reproducible electronic properties. Here, we report SWNT network field effect transistors, deposited from solution, possessing controllable topology and on/off ratio as high as 900,000. The spin-assisted alignment and density of the SWNTs is tuned by different surfaces that effectively vary the degree of interaction with surface functionalities in the device channel. This leads to a self-sorted SWNT network whereby nanotube chirality separation and simultaneous control of density/alignment occurs in one step during device fabrication. Micro-Raman experiments corroborates device results as a function of surface chemistry indicating enrichment of specific SWNT electronic type absorbed onto the modified dielectric. Applications of these SNWT networks in thin film transistors, sensors and transparent electrodes will be presented.

THURSDAY, AUGUST 26, 2010

COOKIES AND COFFEE -- 2:45 P.M.

SEMINAR -- 3:00 P.M.

SARKEYS ENERGY CENTER, ROOM M-204

THIS IS A REQUIRED SEMINAR FOR CHE 5971