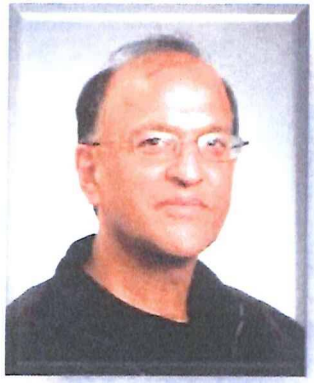
The 331st MANA Special Seminar

Nano Revolution for the Future



Graphene, Few Layer Graphene (FLG) and Carbon Nanotubes

Chair: Dr. Jonathan Hill (MANA Scientist)

Dr. Sharali Malik

(Institute of Nanotechnology, Karlsruhe Institute of Technology)

Few-layer graphene (less than 10 stacked layers) possess outstanding electronic and mechanical properties. However, graphene has a gapless band-structure and is not solution processable. Chemical functionalization has been used to address these problems by covalent modification of graphene's π-electron system in association with wet chemical exfoliation. Here we show new synthetic methods which also achieve this goal. Starting with pristine graphite we have obtained few-layer functionalized graphene. These materials were characterized by Raman spectroscopy, x-ray diffraction and TEM. In a recent article Hirsch [1] reported the first wet chemical bulk functionalization of graphene starting with pristine graphite. This covalent modification of the graphene π-electron system through the introduction of variable chemical decoration leads to the opening of a band-gap in graphene's gapless band-structure together with it being a more easily processable material. However, this is the only wet chemical derivatization sequence of graphene found so far. In this talk, we show that, we can apply analogous methods to those we reported to functionalize carbon nanotubes [2] for the preparation of large quantities of graphene sheets.

Venue: Auditorium, 1F, WPI-MANA Bldg.

Date: May 10th, Friday **Time:** 15:30-16:15

Namiki site

Contact: International Center for Materials Nanoarchitectonics (MANA), Risa Okazawa (ex. 8815)