

# CU Physics Department Colloquium

Monday, November 17, 2008 4:10 PM 428 Pupin Hall



**Tony Heinz, Columbia University**

Carbon Nanotubes and Graphene:

## Electrons in Model One and Two Dimensional Materials

The hexagonally bonded form of carbon, well known as the basis of the bulk crystal of graphite, can now be isolated in the form of a single atomic layer. This atomic monolayer, known as graphene, exhibits many distinctive physical properties, including remarkable mechanical strength, very electron mobility, and room-temperature quantum effects. The same graphene structure is also found in carbon nanotubes, which are seamless cylindrical structures of graphene of nanometer diameter. The carbon nanotubes are thus one-dimensional analogs of graphene. In this talk, we will discuss some of the unusual properties of these novel nanoscale material systems. We will place particular emphasis on the nature of the electronic states of these nearly ideal one- and two-dimensional structures and on how their properties can be elucidated by optical spectroscopy.

Meet the Speaker will be held in 705 Pupin at 2:00 PM