

The Department of Materials Science and Engineering invites you to join us for an upcoming Seminar:

Bellave Shivaram

Department of Physics

The University of Virginia

Host: Jerry Floro

Title: Temperature High Capacity Hydrogen Absorption in Nanoscale Transition Metal Based Organo Metallic Complexes

Date: Monday, February 16th

Time: 4:00 to 5:00 PM

Refreshments: 3:30 to 4:00

Room: Wilsdorf Hall, 101

Abstract:

Using a highly sensitive pico-gravimeter we have discovered high capacity hydrogen absorption in a range of transition-metal(TM) based organometallic complexes prepared using physical vapor deposition techniques. Hydrogen absorption upto 14 wt% at room temperature has been measured in titanium ethylene complexes and confirmed by mass doubling when deuterium is employed instead of hydrogen. I will present results of comprehensive measurements of hydrogen in other TM-complexes of alkenes, alkanes and ring compounds. I will also discuss these measurements in the context of theoretical calculations based on first principles quantum mechanics that have appeared in the recent literature as well as in the context of previous experimental work in this area.

Outstanding issues that remain going forward will also be presented.