

Physics 7346 (Fall 2015)

Ion Beam Modification & Characterization of Materials

(Ion beam processing, synthesis and characterization of bulk materials, surfaces and nano-materials)

Instructors: Prof. Wei-Kan Chu

(wkchu@uh.edu), 713 743-8252, (<http://www.uh.edu/~wkchu/>)

With Dr. Buddhi Tilakaratne

A course for graduate students and seniors majoring in

PHYSICS, CHEMISTRY, ME., Ch.E., AND EE.

Friday, 1:00 – 4:00 pm, Rm #114 & 115, Houston Science Center

Ion beam modification and characterization of materials is an essential science and technology critical to semiconductor industry, semiconductor research, structural materials, nano-technology, and medical technology. This course gives you a unique exposure to ion beam science emphasizing on current and modern industrial and scientific applications.

The course consists of lecture time (70 %) that covers theory of ion-solid interactions, with emphasis to ion implantation, ion beam engineering of bulk, surface (including atomic scale smoothing), and nano-materials (including ion beam synthesis of nano-structures). The course further covers ion beam materials and thin film analysis techniques that include RBS, ERD, NRA, RBS-C. 30 % of the course consists of laboratory sessions where you will be working with a NEC ion implanter, a 1.7 MeV NEC tandem accelerator based ion implantation and a cluster ion beam system.

(Due to laboratory space limitations, the enrollment will be limited to 10 students in this course. Please sign up early.)