



Effects of high laser fluence on the surface & microstructure of Hydroxyapatite /Calcium Phosphate films deposited by PLD.

by Mr. Le Quang Tri

Date: 11th February 2009 (Wednesday)
Time: 12:00pm to 1:00pm
Venue: EA-02-11 (Executive Seminar Room)

Abstract

The effects of laser fluence on surface & microstructure of Hydroxyapatite / Calcium Phosphate films are studied and presented in this seminar. The PLD system used is 248 nm KrF laser. At different laser energy densities ranging from 2.4 to 29.2 J/cm², the films obtained were studied by XRD, XPS and SEM. XRD results show that samples deposited at 2.4 J/cm² are mostly amorphous, which was also found by other research groups when investigating hydroxyapatite films deposited at laser fluence below 9 J/cm². However, when higher laser fluences were used, crystallinity of as-deposited films also increased. XPS spectra of as-deposited films confirm the existence of Ca²⁺, P⁵⁺ and O²⁻. Surface morphology of obtained films are shown to be similar. After annealing, XRD results show the transformation of hydroxyapatite into α and β phases of tricalcium phosphate. There are also shifts towards higher energy of XPS peaks of annealed samples. Whereas sample deposited at 12.4 J/cm² appears with a lot of holes on the surface after annealing, surface of sample deposited at 29.2 J/cm² seems to be denser and cracks are also observed.

Mr. Le Quang Tri Speaker

Mr Le Quang Tri received his bachelor degree in Physics from University of Natural Sciences, Vietnam in 2007. Currently, he is pursuing his PhD degree under the supervision of Dr. Daniel Chua and his research focus is on hydroxyapatite and hydroxyapatite - based composites.

Dr Xue Jun Min Host

All are Welcome!