



ΙΤΕ/ΙΕΧΜΗ

ΣΕΜΙΝΑΡΙΟ ΣΕΜΙΝΑΡΙΟ

ΟΜΙΛΗΤΗΣ: **Νικόλαος Μπουρόπουλος**, Αναπληρωτής Καθηγητής
Τμήμα Επιστήμης των Υλικών, Πανεπιστήμιο Πατρών

ΘΕΜΑ: **Synthesis and Characterization of Calcium Phosphate Bone Cements**

ΤΟΠΟΣ: Αίθουσα Σεμιναρίων ΙΤΕ/ΙΕΧΜΗ

ΗΜΕΡΟΜΗΝΙΑ: **Δευτέρα, 2 Φεβρουαρίου 2015**

ΩΡΑ: **12:30**

ΠΕΡΙΛΗΨΗ

Bone grafting is the surgical procedure to place new bone or a replacement materials into bone defects with the objective of osseous regeneration. Nowadays, different types of synthetic materials such as polymers, ceramics, and glasses have been used in osseous defect sites as bone substitutes. Calcium phosphate ceramics such as hydroxyapatite or tricalcium phosphate are among the materials that are currently widely used in clinical practice as bone fillers due to their excellent biocompatibility and osteoconductivity. Calcium Phosphate bone cements (CPBCs) are materials which offer many advantages which allow their use as grafts or implants in several occasions of bone defects or deficiencies. One of their main advantages apart from high biocompatibility and bioactivity is their injectability in the form of a paste, directly to the surgical site. Moreover, they can be used as drug eluting carriers such as antibiotics, anti-inflammatory etc. for the treatment of bone infections. In general, these cements are produced by mixing water or aqueous phosphate solutions such as disodium hydrogen phosphate with a solid calcium phosphate phase, resulting in a quick hardening-curing malleable paste composed of either brushite or calcium deficient apatite. The most studied bone cement is the apatite cement owing to its similarity to natural bone. In the case of apatite cement, the relatively good mechanical properties owe to the entanglement of needle-like hydroxyapatite crystals, which are a product of calcium phosphate hydrolysis in time. In the present seminar our recent work on CPBCs will be presented.



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Short CV

Dr. Nikolaos Bouropoulos received his B.Sc. in Chemistry in 1992 from The University of Patras, Greece and his PhD in Chemical Engineering from The University of Patras, Greece in 1997. He performed postdoctoral studies at Department of Structural Biology at Weizmann Institute of Science in Israel and at Center for Craniofacial Molecular Biology at the University of Southern California, Los Angeles, USA. From 2002 he is a staff member at the Department of Materials Science University of Patras, Greece and currently he is an Associate Professor. His research interests are focused on: allograft materials as bone substitutes e.g. calcium phosphate bone cements and calcium phosphate ceramics; synthesis, structural and optical characterization of semiconductive zinc oxide nanostructures; studies on biogenic materials formed during pathological and nonpathological calcification (dental enamel, urinary stones, sialoliths); drug delivery systems based on biopolymers; crystal growth from solutions and melts.