ΑΝΑΚΟΙΝΩΣΗ

ΠΑΡΟΥΣΙΑΣΗ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

Του Φοιτητή **Νικόλαου Κονιού,** θα γίνει την

Τετάρτη 10/07/2019 και ώρα **10:00**

στην αίθουσα Β2 του Κτιρίου του Τμήματος Χημείας.

Θέμα Διπλωματικής:

«Polymer-coated spherical and rod-like inorganic particles»

Σύντομη περιγραφή:

Inorganic nanoparticles are widely used as reinforcements in composite materials. Theory and experiments have indicated that further enhancement of the mechanical properties of the hybrid materials is induced by using anisotropic fillers. Modification of the surface of the inorganic particles with polymers is often required to improve the dispersion of the particles in the organic matrix and prevent aggregation. Well-defined, polymer-coated inorganic colloids can serve as model systems to provide insights and help understanding the behavior of complex industrial composite materials.

In this work, model core-shell particles comprising silica spheres or rods coated with a polymer shell were synthesized using emulsion polymerization. Three different monomers, namely methyl methacrylate (MMA), methacrylic acid (MAA) and N-isopropylacrylamide (NIPAM), were selected to obtain hydrophobic, pH- and temperature-responsive particles, respectively. Polymerization parameters, such as the monomer/silica feed ratio, the surfactant concentration and the presence of a cross-linker were varied to optimize the coating characteristics. Raspberry-like or homogeneous polymer shells were grafted on the particles, with tunable shell thickness. The resulting core-shell particles were characterized using thermogravimetric analysis as well as scanning and transmission electron microscopies (SEM, TEM). Finally, the polymer coated spheres and rods were etched with sodium hydroxide solution to yield hollow polymeric nanocapsules.