Sveučilište u Zagrebu
Prirodoslovno-matematički fakultet
Kemijski odsjek

KOLOKVIJ

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održat će u srijedu 19. veljače u predavaonici P1 (prizemlje zgrade Kemije, Horvatovac 102a) s početkom u 11:00 sati kolokvij pod naslovom:

Effective materials in wastewater treatment: Low cost-, selective-, super- and nano-adsorbent materials

Sorption is a physical and chemical process by which one substance becomes attached to another. A specific case of sorption is the adsorption; Adsorption is the adhesion of atoms, ions or molecules from a gas, liquid or dissolved solid to a surface. This process creates a film of the adsorbate on the surface of the adsorbent. Adsorption is considered to be a very promising separation technique especially for the removal of pollutants in liquid-phase (dyes, heavy metals, phenols, etc). However, the economic crisis of the 2000s led researchers to turn their interest in adsorbent materials with some special characteristics: (i) super-adsorbent materials of high capacity; (ii) selective adsorbent materials (Molecular Imprinted Polymers – MIPs); (iii) low-cost adsorbent materials; (iv) nano-adsorbent materials. All above can include materials with significant properties beginning from the low-cost and reaching the super-properties. The first class contains many materials as activated carbons, agricultural wastes, modified polymers, graphenes, etc. In the present presentation, experimental data are presented from work of Prof. Kyzas, including the synthesis, characterization and adsorptive evaluation of those materials applied to wastewater treatment. Some indicative classes of materials are: (i) MIPs which are used for specific binding of highly-added value pollutants as precious metals (silver, gold) or drugs for recovery, etc, (ii) activated carbons of high surface area, (iii) polymers (i.e. chitosan) of high capacity; (iv) agro-food wastes of almost low-cost synthesis; (v) nanomaterials (graphenes) of significant properties. In this lecture, a recent summary of this type of works will be presented analyzing in details the next-generation adsorbent materials, discussing many different (maybe in some occasions doubtful) topics such as: (i) adsorption capacity; (ii) kinetic modeling and (iii) desorption/reuse potential.