

Seminário / Research Seminar

Nanostructured Polymers: Opportunities in Health, Environment, and Energy Applications

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Polymers offer prime examples of materials where nano- and meso-scale molecular organization impacts profoundly the material properties and function. Copolymers, consisting of covalently-linked blocks of different chemical nature or conformation, present model systems for the elucidation of the connections between chemistry, physics, and engineering. The addition of selective solvents may disrupt certain types of polymer organization but can promote others. The solvents thus provide valuable degrees of freedom for controlling the morphology and, hence, structure/property relationships, and can dramatically affect the local mobility.

The presentation will highlight the interplay between fundamentals of block copolymer self-assembly in selective solvents and their applications in the (a) structuring of waterborne complex fluids with properties tailored for pharmaceuticals, (b) environmentally benign synthesis of metal and semiconductor nanoparticles in a size- and shape-controlled manner, and (c) formulation of polymer gels with ionic liquids as potential electrolytes for lithium batteries.



Bio: Paschalis Alexandridis is a UB Distinguished Professor in the Department of Chemical and Biological Engineering, University at Buffalo (UB), The State University of New York (SUNY). He is the founding co-director of the Materials Science and Engineering program, and has served as Acting Associate Dean for Research and Graduate Education in UB's School of Engineering. Alexandridis' research utilizes molecular interactions and supramolecular assemblies to develop products with desired properties and function. Ongoing projects address ionic liquids for structuring, polymer electrolytes, cellulose dissolution, nanocomposites, and dispersants. He has authored over 130 journal articles (cited 8600 times) and is coinventor of 10 patents. Alexandridis is a Fellow of the American Association for the Advancement of Science (2012), and the recipient of the American Chemical Society Schoellkopf Medal (2010), Bodossaki Foundation Academic Prize in Applied Science (2005), and SUNY Chancellor's Awards for Excellence in Scholarship and Creative Activity (2011) and in Teaching (2006).

Where? Department of Chemical Engineering, Anfiteatro Nobre (Piso -2)

When? June 24th, 14:30-15:30 (+ Discussion)