Chemistry Department

Sharif University of Technology

Invited Speaker

"The Significance of Nano-Bio Interfaces"

By:

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Date and Time:

Sunday 22/3/1390-

14:30- Razi Hall

Abstract

The emerging fields of nanoscience and nanoengineering are leading to unprecedented understanding and control over the fundamental building blocks of all physical things. Nanoscience will provide tremendous potential for biomedical research and application. The key role of protein-nanoparticle interactions in nanomedicine and nanotoxicity has begun to emerge recently via the identification of the nanoparticles-protein (biomolecule) corona. This dynamic layer of proteins or other biomolecules adsorbed to nanoparticle surfaces, interacting with living systems and thereby modifying the cellular responses. In this presentation, a range of different parameters which affect protein adsorption and cellular responses to NPs, and also the methods used for characterizations of the nanoparticle-protein 'corona' will be discussed. Based on this, it would be revealed that there is significant new potential for understanding/nanoparticle-protein interactions, and thereby influential cellular behavior and response to nanoparticles. In particular, there is considerable scope for nanomaterials "safety by design" via tailoring NPs to acquire specific, desired biological identity via protein (biomolecule) corona.