PLEASE JOIN US

THE DEPARTMENT OF CHEMISTRY WELCOMES YOU TO JOIN THEM FOR GUEST LECTURE

Examining the Impact of Dendrimer Structure on the Encapsulation of Small Organic Pollutants

AMY M. BALIJA, Ph.D.

Department of Chemistry

Fordham University

Bronx, NY

Thursday 2/20/14 • 11:30 AM • SCI 222

Dendrimers are highly branched macromolecules which contains interior voids that can encapsulate small molecules. However few studies have been done to determine what factors influence the ability for dendrimers to entrap molecules. In the research described in this talk, a series of novel aryl ether and aryl amine dendrimers was synthesized in order to systematically study the effect of structural modifications on the ability of dendrimers to remove small molecule environmental pollutants from aqueous solution. Specifically, polycyclic aromatic hydrocarbons (PAHs), a ubiquitous class of pollutants with adverse health effects, were targeted for encapsulation. Fluorescence spectroscopy indicated that thin films of each dendrimer removed different percentages of pyrene, a representative PAH, from an aqueous solution. The results from these encapsulation studies were compared with a) computational predictions and b) hydrodynamic volumes experimentally determined using size-exclusion chromatography (SEC). Based on the encapsulation data, guidelines are being established for the design of new dendrimers and other hyperbranched macromolecules with more optimized properties for the removal of small molecule pollutants from water.

1865 RIDER UNIVERSITY