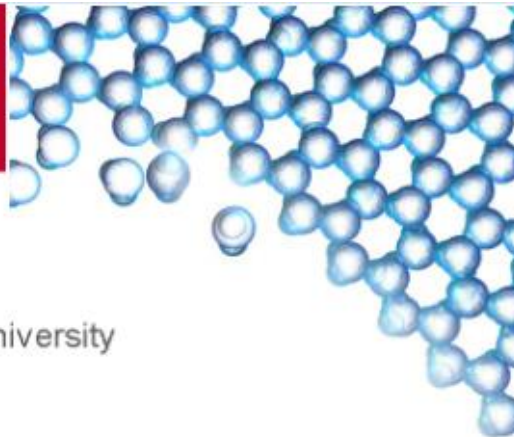


Physical Chemistry Seminar Series



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Friday, June 9 • 12:00 pm

Proteomics, Room 120

Protic ionic liquids: interaction with proteins and high throughput methodologies

Protic ionic liquids (PILs) are highly tailorable solvents, which can be designed to have good properties for a broad range of applications, including as lubricants, solvents and or catalysts for organic reactions, in inorganic synthesis, and as electrolytes in fuel cells. PILs are made through a simple neutralisation reaction of a Brønsted acid and a Brønsted base, and hence there is a vast number of possible cation and anion combinations which can lead to PILs. We have developed high throughput methodologies to enable large libraries of PILs and aqueous PILs to be screened for specific properties.

One particular area we are investigating is the use of PILs as solvents for biological molecules. There are many industrial applications where it would be beneficial to have tailorable solvents which are capable of maintaining enzymes in an active state. Our initial work has focussed on the protein stability of hen egg white lysozyme in an extensive array of neat and aqueous PILs and molecular solvents. We have selected PILs which have a good solvophobic effect, and systematic changes in their chemical structure. Small changes in the chemical structure led to substantial changes in the structure and activity of lysozyme.

