

Internal Webinar

Molecular Insights of Interactions, Structural and Thermal Stability of Biomolecules in Ionic Liquids

Dipak Kumar Sahoo

NISER, Bhubaneswar

Ionic liquids (ILs) have many unique physicochemical properties like low vapour pressure, non-flammability, wide liquid range, thermal stability, air and water stability, non-toxicity etc. those accolade them as green solvents for wide variety of applications in chemistry, material science, engineering and environment science. A suitable combination of various cations and anions is necessary to tune the polarity and hydrophilicity or hydrophobicity of ILs which can consequently be useful in various applications such as stability and activity of DNA and proteins, flue gas absorption, dissolution and catalysis etc. Molecular level understanding of various non-covalent interactions such as short range van der Waals force, long range isotropic coulombic forces and anisotropic hydrogen bonds that controls the chemical and physical properties of ILs provides us upper hand to design better ILs to circumvent the said purposes. This talk mainly focuses on the synthesis and application of cholinium and amino acid based biocompatible green ionic liquids (ILs) for protein and DNA preservation, nucleobase dissolution and gas absorption. With the help of different spectroscopic and other experimental techniques as well as computational methods, a detailed molecular insight of non-covalent interactions between ILs and biomolecules responsible for the protein and DNA stability will be presented.

Thursday, Jul 2nd 2020

11:30 AM