***Monitoring interactions in ionic liquids using vibrational spectroscopic techniques***

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Abstract

The interactions in ionic liquids are mainly interplay among coulombic forces hydrogen bonding as well as van der Waals interactions. These interactions can be identified by using vibrational spectroscopy. The systems that chosen for this presentation are the HCnImNTf2 (n=0-12) protic ionic liquids. For short alkyl chains the local structure is affected by intramolecular interactions caused from the induction effect (+*I*) due to the chain substituent of the imidazole ring, while for PILs with n>3 the π-π interaction as well as vdW interactions became dominant. Also it will be shown that the conformational isomerism of the anion could be a good indicator of the relative magnitude of interactions where the absence of hydrogen bonding favors the trans conformer in contrast to ILs where cis conformer is predominant.