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NMR spectroscopic investigations of solutions of polar substances in ionic liquids

The present work deals with the interactions in ionic liquids with and without the addition of solvents. Among the liquids studied are aprotic ionic liquids with the ethyl-3-methyl-imidazolium ([C2mim]⁺) cation, in which the alcohol 3-ethyl-2,2-dimethyl-3-pentanol gives two different configurations for the assembly of the molecules found, as well as protic ionic liquids with the triethylammonium ([TEA]⁺) cation. Furthermore, it has been shown that a method developed by Wendt and Farrar for the determination of quadrupole coupling constants also applies to the investigated liquid phase solvents and solvents. This allowed reorientation times to be determined which, for methanol in [C2mim] [NTf2], refute the Stokes-Einstein and the Stokes-Einstein-Debye relation.