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Dielectric relaxation study and molecular interaction of amides in 1, 4-dioxane by using time domain reflectometry

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The dielectric relaxation studies of amides (hexamethylphosphoramide, N-methylformamide, N, N-dimethylformamide and N-methylacetamide) have been carried out in non-polar solute (1, 4-dioxane) using time domain reflectometry technique in the frequency range 10 MHz to 30 GHz. The hydrogen bonded model has been applied to understand the dielectric behavior of amides solution in terms of molecular interaction. Luzar proposed a more realistic hydrogen bonding model. The Kirkwood correlation factor, Bruggman factor, excess dielectric properties were determined and discussed to yield the information on the molecular structure and dynamics of the mixtures.

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