317. Title:Low-frequency spectra of metallocenium ionic liquids studied by terahertz time-domain spectroscopy

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Source title:Journal of Physical Chemistry A
Volume:115
Issue:8
Issue date:March 3, 2011
Publication year:2011
Pages:1313-1319
Language:English
Document type:Journal article (JA)

Abstract:Terahertz (THz) time-domain spectroscopic measurements have been done on five novel metallocenium ionic liquids based on the electro-optic sampling method. The study covered the spectral range from 10 to 85 cm-1. The complex dielectric spectra were broad and dispersive in nature, and the imaginary part of the dielectric constant consisting of part of the dielectric constant was simulated with different combinations of model functions to unravel the intermolecular dynamics. We compared our results with the previous results on the other ionic liquid. It was revealed that the librational motion of the cations as well as the interion vibration between the cations and the anions are responsible for observed dynamics in THz region. No intramolecular vibrational mode has been found in the low-frequency region.