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Title:Spectral Properties of Nematic Liquid Crystal Mixtures Composed with Long and Short Molecules in THz Frequency Range

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Abstract:Properties of liquid crystal materials in THz frequency range can be interesting from application point of view.

In this paper the influence of short and long molecules added to liquid crystal 6CHBT were investigated. Change of refractive indices and absorption coefficients for 6CHBT mixtures were compared in the 0.3 - 3 THz frequency range. Influence of temperature on the mentioned parameters of liquid crystal were investigated. Our study show that even a slight change in shape and the composition of the molecules dopants affects the macroscopic properties of liquid crystal. These properties depend on the length of chains, the number of benzene or cyclohexane rings or the spatial distribution of molecules and the interactions between them in the liquid crystal mixture. Spectra measurements on the terahertz time-domain spectrometer were performed.

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