117
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Title:Accurate optical parameters extracting of non-polar organic solvents in the terahertz range
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Abstract:Six kinds of non-polar organic solvents were measured by using terahertz time-domain spectroscopy (THz-TDS), including positive hexane, cyclohexane, petroleum ether, carbon tetrachloride, carbon bisulfide, and toluene. These non-polar organic solvents are often used to solve other organics, so knowing the parameters of these non-polar organic solvents are important for studying optical properties of other organics in the frequency range of terahertz. The influence of the cuvette on THz signal was considered. Accurate optical parameters including refractive index and absorption coefficient were analyzed by the novel expression of the transfer function. In addition, according to the relationship among these absorption coefficients of five organic solvents, the polarity relationship can be determined.
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