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Title:Quantitative analysis of terahertz spectra for illicit drugs using adaptive-range micro-genetic algorithm
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Abstract: In the field of anti-illicit drug applications, many suspicious mixture samples might consist of various drug components—for example, a mixture of methamphetamine, heroin, and amoxicillin—which makes spectral identification very difficult. A terahertz spectroscopic quantitative analysis method using an adaptive range micro-genetic algorithm with a variable internal population (ARVIPεμGA) has been proposed. Five mixture cases are discussed using ARVIPεμGA driven quantitative terahertz spectroscopic analysis in this paper. The devised simulation results show agreement with the previous experimental results, which suggested that the proposed technique has potential applications for terahertz spectral identifications of drug mixture components. The results show agreement with the results obtained using other experimental and numerical techniques
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