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Title:Study on terahertz time-domain spectroscopy of HNS by sample measure and quantum chemistry calculation

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Abstract:The absorption spectra of 2,2',4,4',6,6' - Hexanitrostilbene (HNS), in the frequency range between 0.2 and 4.0 THz, are calculated using quantum chemistry calculations and resulted in 1.9 THz and 3.3 THz. The experimental result offered by THz time-domain spectroscopy and FTIR shows that the characteristic peaks are located at 1.7 THz and 3.1 THz. Compared with experimental results, all the evidences indicate that HNS has distinct characteristic peaks, which agree with the simulation results. It is believed that this method can detect this material quickly and accurately, which means a lot to the explosives detection.

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