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Title:An intense tunable femtosecond gas-plasma THz source: Application in spectroscopic studies of polycyclic aromatic hydrocarbons
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Abstract:We present a review on the emission of intense THz pulses from 2-color femtosecond laser filaments in gases. Through the tailoring of the filamentation process tuning of the emitted THz pulses is possible and is described in details. Using these THz pulses as a spectroscopic tool, the absorption spectra of small polycyclic aromatic hydrocarbons and their halogenated compounds are studied. Distinct resonance features for all the examined compounds have been observed, demonstrating the potential of the approach for rapidly discriminating the molecular structure of large organic molecules, in their crystalline form.
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