Retrieval of internuclear separations of molecules from intense laser-induced high-order harmonic spectra.\textsuperscript{1} CHENG JIN, Department of Physics, Kansas State University, VAN-HOANG LE, NGOC-TY NGUYEN, Department of Physics, University of Pedagogy, Vietnam, ANH-THU LE, CHII-DONG LIN, Department of Physics, Kansas State University — Using high-order harmonics generated by intense infrared laser pulses, an iterative method for retrieving the internuclear separations of \textit{N}_2, \textit{O}_2, and \textit{CO}_2\text{ molecules} is presented. It is shown that accurate results can be retrieved with a small set of harmonics and with one or few alignment angles of the molecules. The internuclear separations of linear molecules can be retrieved from harmonics generated by isotropically distributed molecules. It is further demonstrated that the internuclear separations can also be retrieved by fitting the extracted transition dipole moment from harmonic spectra. It is concluded that time-resolved chemical imaging of molecules in terms of infrared laser pulses with femtosecond temporal resolution is possible.

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Cheng Jin
Department of Physics, Kansas State University

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