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Rotational wave packet dynamics with high energy excitation[1]
MARK BAERTSCHY, University of Colorado at Denver, OMID MASIHZADEH, Colorado State University, RANDY BARTELS, Colorado State University — In recent years molecular phase modulation of light has been vigorously investigated as a method for optical pulse manipulation. To optimize phase modulation, a rotational wave packet is excited by alignment pulses with peak intensities of $\sim 10^{13}$ W cm^{-2} and pulse durations > 100 fs. Interference structures emerge in the angular density matrices for the rotational wave packet excited by these energetic laser pulses. The interference structures emerge with increasing pulse energy. We present a simple physical interpretation relating the observed interferences in the density matrices to dynamics of the rotational wave packets formed by the pulse interaction.

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Mark Baertschy
University of Colorado at Denver

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