Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

A Generalized Interpretation of Time Resolved Photoelectron Spectroscopy Experiments[1] VARUN MAKHIJA, University of Ottawa, Department of Physics , PAUL HOCKETT, National Research Council of Canada, ALBERT STOLOW, University of Ottawa, Departments of Physics and Chemistry —
We present a generalized interpretation of one photon pump - one photon probe, angle and time resolved photoelectron spectroscopy experiments in molecules. Using a previously derived mathematical formalism based on the density matrix, we are able to clarify the different aspects of molecular wavepacket dynamics that are observed in each beta parameter. As a general result, we find that rotational coherences are separated out from vibronic population dynamics by the highest order beta parameter. Data from linear, symmetric and asymmetric tops molecules is presented to demonstrate the validity of this interpretation.

[1]NSERC Discovery Grant

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Date submitted: 24 Jan 2018 Electronic form version 1.4