THE FINE STRUCTURE OF ROTATIONAL COHERENT SPECTROSCOPY

Y. ZHAO, *Department of Physics, Northwest Normal University, LanZhou, 730070, PR China*; GUO Z. HE, *The key Lab. of Molecular Reaction Dynamics, Dalian Institute of Chemical Physics, Dalian, 116023, PR China*.

With the density matrix method in Liouville space, ultrafast pump-probe polarization spectroscopy and its fine stricture are developed. For off resonant pump excitation, derived is general formula which is valid for an arbitrary intense and shape of the polarization pump field. The probe process is involved with general linear spectroscopy theory. The relation between molecular distribution on Rotational excited state in electronic ground-state and the spectroscopy is discussed. It is found that from the spectroscopy we not only decide molecular constants, well discussed by P. M. Folker $et.al$, but also molecular rotational temperature and primary product distribution of Chemical reaction can be obtained from its fine structure.