STATIC COHERENT CONTROL OF INTRAMOLECULAR VIBRATIONAL ENERGY REDISTRIBUTION (IVR) IN $SCCl_2$

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To date, successful demonstrations of quantum control fall into two categories: (1) those that rely upon highly-dissociative potential surfaces or low-energy reactions which fall below the onset of IVR to effect control, and (2) those that seek to actively steer a wavepacket along a potential energy surface toward a desired exit channel. A possible third method of quantum control involves the actual "freezing" of a vibrational wavepacket, slowing the rate of IVR until a reaction can occur. This method is not inherently system-dependent and requires fewer control parameters than wavepacket steering. A multi-photon experiment, designed to directly measure and maximize the survival probability of a wavepacket formed on the $SCCl_2$ ground state, will be detailed.