

Coherent control holds the promise of becoming a powerful spectroscopic tool for the study of complex molecular systems. Achieving control requires coherence in the quantum system under study. In the condensed phase, coherence is typically lost rapidly due to fluctuating interactions between the solvated molecule and its surrounding environment. We investigate the degree of attainable control on a molecule when the fluctuations of its environment are systematically varied. A single successful learning curve for optimizing stimulated emission is reapplied for the solute a range of solvents with varying viscosity, revealing a striking trend that is correlated directly to the dephasing time