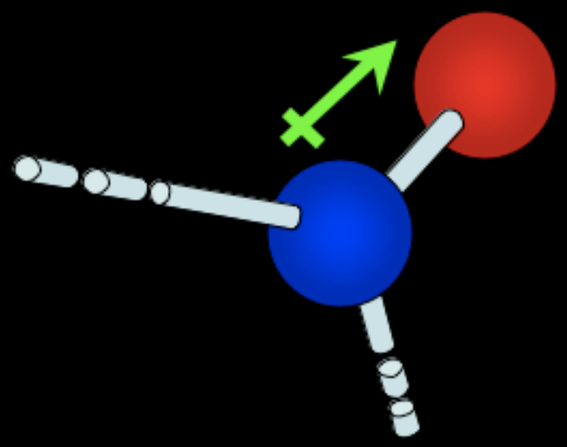
Structural Dynamics in Conducting Polymers

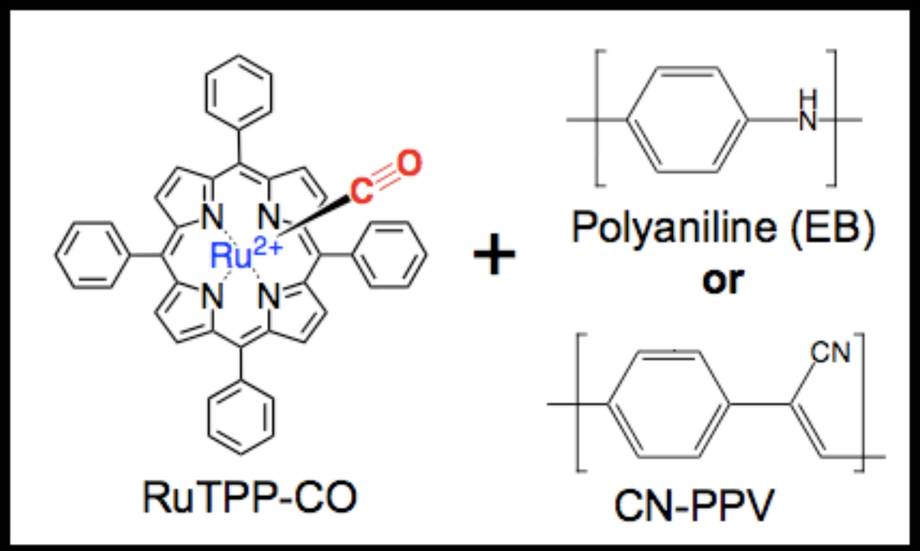
Aaron M. Massari, Department of Chemistry, University of Minnesota - Twin Cities, Minneapois, MN 55455

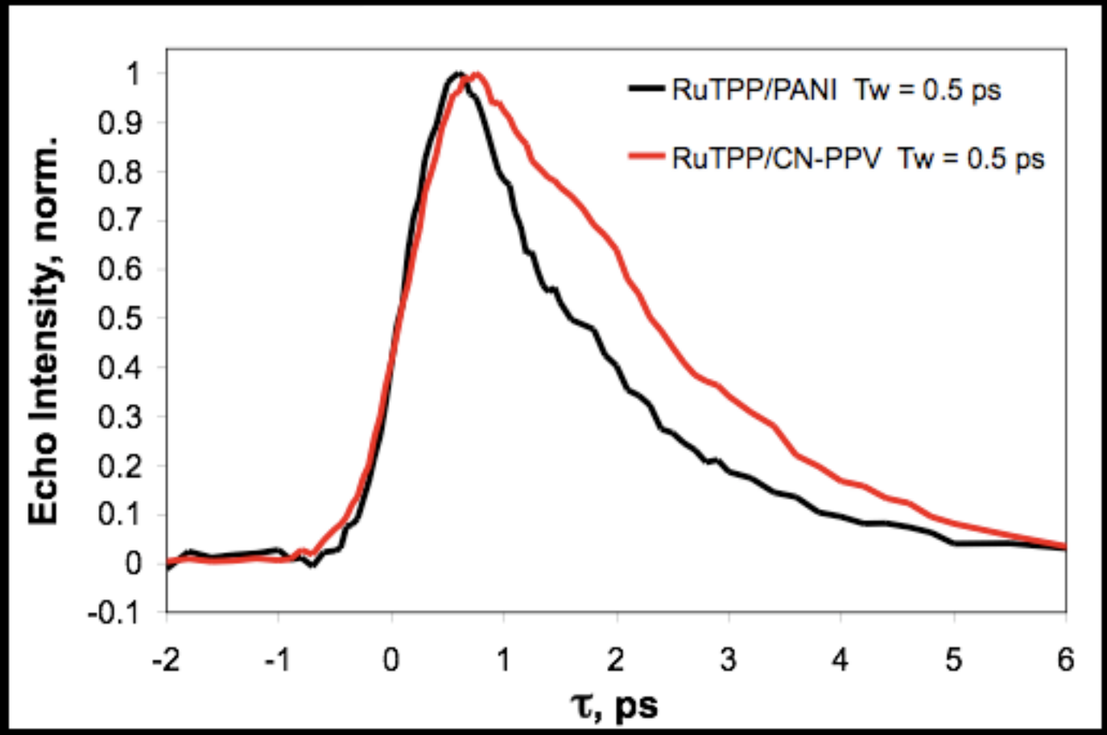


In this work we seek to measure the structural dynamics of conducting and semiconducting polymers that have potential applications as lightweight energy storage materials. Our approach involves embedding and IR-active chromophore into a polymer film to serve as a reporter of the local chemical dynamics. The methodology that we use to extract these dynamics is 2D-IR Vibrational Echo Spectroscopy (VES)

Time-dependent perturbations by solvent and/or surrounding molecules (polymers) cause frequency shifts in the "reporter" molecule…

"reporter" polymers





Different vibrational echo decays are evidence of different dynamical processes, which we will relate back to material function.