

Combining electronic and nuclear structure in order to understand structure-function relationships is important in our understanding of basic chemistry and chemical processes in nature. Here we combine x-ray molecular frame resonant Auger electron spectroscopy with ultrafast electron diffraction. Auger spectroscopy yields site specific valence chemical environments, while ultrafast electron diffraction gives us nuclear structure. In order to correlate these experiments, we use ultrafast laser control to induce an ensemble wide coherence in both experiments.