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## Following ultrafast dynamics with soft X-ray spectroscopy

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Soft X-ray spectroscopy is a valuable tool for extracting information about the electronic properties of atoms and molecules within a given sample. This technique provides insights into various aspects, including electronic configuration, bonding traits, and the surrounding chemical environment. Nevertheless, a significant portion of pertinent chemical processes, particularly those of a biochemical nature, transpire within liquid environments.

This circumstance introduces an inherent challenge for experimental endeavors. Consequently, the exploration of molecular systems within their native liquid state necessitates the utilization of advanced experimental setups and sample delivery mechanisms.

In this presentation, I will delve into the most recent findings derived from compact photon sources that can be operated on a tabletop. These sources harness powerful femtosecond lasers to drive soft

X-ray (SXR) generation, facilitating the practice of time-resolved X-ray absorption spectroscopy (TRXAS).

Through this approach, it becomes feasible to monitor dynamic structural and electronic changes in real time.

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