

Tabletop picosecond time-resolved x-ray emission and absorption spectroscopy with ultra-efficient spectrometers

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Ultra-efficient microcalorimeter spectrometers enable time resolved x-ray emission and absorption measurements in the lab. We show two examples of time-resolved x-ray measurements with 2-3 ps time resolution, performed in a lab with a laser-plasma x-ray source. The working principles of the microcalorimeter spectrometer are explained, and a quantitative comparison to wavelength dispersive spectrometers is made. The potential for these spectrometers to be used at SSRL and the LCLS, or for pre-screening samples in a lab before beam time, is discussed. Finally, we will point you towards two posters in this session showing results from the new SSRL 10-1 microcalorimeter spectrometer.