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Bldg. 28c, seminar room

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Materials in extremes and future X-ray FELs

Experiments involving the study of materials at high temperature and high pressure will be discussed. The experimental techniques include laser heating, using both optical and x-ray ultrafast pulses, and including high-energy shock drivers, together with diagnostics including near edge absorption, emission, and inelastic scattering. Existing and planned x-ray FELs have capabilities for revealing the properties of materials at eV temperatures and multi-megabar pressures. Also, concepts surrounding a proposed, high repetition rate, soft x-ray FEL being considered at Berkeley will be discussed.

The image below shows x-ray transmission data from a picosecond resolution streak camera, from which we determine the time dependence of changes in absorption near the copper L-edge upon isochoric heating of a thin target to about 2 eV electron temperature.

