

Abstract Submitted
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Design of an Extreme Ultraviolet Spectrometer Suite for Isochoric-Heated Warm-Dense-Matter Studies S. IVANCIC, C.R. STILLMAN, P.M. NILSON, D.H. FROULA, Laboratory for Laser Energetics, U. of Rochester — An ultrafast streaked extreme ultraviolet (XUV) spectrometer (5 to 35 nm) is in development for the measurement of warm dense matter (WDM). In contrast to other forms of pyrometry where the temperature is inferred from bulk x-ray emission, XUV emission is restricted to the sample surface, allowing for the measurement of temperature at the material–vacuum interface. The measurement of the surface temperature is of particular importance in constraining models for the release of WDM. The divergence of surface and bulk temperature measurements may indicate gradients in temperature in the target. Coupling the XUV spectrometer to an ultrafast streak camera allows for the observation of picosecond time-scale evolution of the surface layer temperature. Two high-throughput XUV spectrometers are being designed to measure the time-resolved and absolute XUV emission. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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