

Abstract Submitted  
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**Focused X-ray Thomson Scattering Experiments using the Hybrid X-pinch Radiation Source**<sup>1</sup> CAD HOYT, SERGEI PIKUZ, TANIA SHELKOVENKO, BRUCE KUSSE, DAVE HAMMER, Cornell University — X-ray Thomson scattering (XRTS) experiments require intense sources of radiation to probe the high densities present in warm dense matter experiments. Past experiments have utilized free-electron lasers or kilojoules of laser energy coupled to foils to produce these sources. The brightness of X-pinch X-ray sources is shown to be comparable to the X-ray sources used in these previous experiments and suitable for application as an XRTS source with the Ti hybrid x-pinch providing  $10^{15} - 10^{16}$  photons into  $4\pi$  steradian. We present results of the first XRTS experiments utilizing the hybrid x-pinch as a probe source incorporated in a novel focusing scheme. We use a primary Bragg optic (Ge400) to collect and focus radiation onto a target and a secondary high-efficiency HAPG/HOPG optic to collect the scattered radiation. Results of scattering from heated targets driven by an independent pulser circuit are compared with cold scattering in the non-collective scattering regime.

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Cad Hoyt  
Cornell University

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