

Abstract Submitted  
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**Optimization of an Elliptical Spectrometer for the Study of X-Pinch Physics** ADAM CAHILL, CAD HOYT, TANIA SHELKOVENKO, SERGEI PIKUZ, DAVID HAMMER, Cornell University — Previous work has established the design of an elliptical spectrometer on the XP accelerator platform at Cornell University with the aim of studying the development of the plasma structures surrounding the core of an x-pinch. The spectrometer is aligned to view the absorption of hydrogen and helium-like resonance lines of magnesium in a sample x-pinch from a burst of continuum radiation generated by a second source pinch. In an attempt to minimize background signals reaching the detector film, a limiting aperture to the film cassette along with an aluminum band-pass filter have been included in the design. While effective at attenuating background noise, these two efforts have been proven to be incapable of reducing noise levels to an acceptable minimum. We hypothesize that the primary source of this background is due to x-rays scattering off of the nearby structural components of the spectrometer. The work presented here details our efforts to identify and further reduce the sources of the scattered background radiation signals in the collected experimental data.

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