

Abstract Submitted
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Study of high resolution x-ray spectrometer concepts for NIF experiments¹ K.W. HILL, M. BITTER, L. DELGADO-APARICIO, P. EFTHIMION, L. GAO, J. MADDOX, N.A. PABLANT, Princeton Plasma Physics Laboratory, P. BEIERSDORFER, H. CHEN, F. COPPARI, T. MA, R. NORA, H. SCOTT, M. SCHNEIDER, Lawrence Livermore National Laboratory, R. MANCINI, University of Nevada, Reno — Options have been investigated for DIM-insertable (Diagnostic Instrument Manipulator) high resolution ($E/\Delta E \sim 3000 - 5000$) Bragg crystal x-ray spectrometers for experiments on the NIF. Of interest are time integrated Cu K- and Ta L-edge absorption spectra and time resolved Kr He- β emission from compressed symcaps for inference of electron temperature from dielectronic satellites and electron density from Stark broadening. Cylindrical and conical von Hamos, Johann, and advanced high throughput designs have been studied. Predicted x-ray intensities, spectrometer throughputs, spectral resolution, and spatial focusing properties, as well as lab evaluations of some spectrometer candidates will be presented.

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