Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Hard X-ray and Particle Beams Research on 1.7 MA Z-pinch and Laser Plasma Experiments[1] ISHOR SHRESTHA, VICTOR KANTSYREV, ALLA SAFRONOVA, ANDREY ESAULOV, Department of Physics, University of Nevada, Reno, NV, MINEYUKI NISHIO, Nihon University, Tokyo, Japan, VERONICA SHLYAPTSEVA, STEVEN KEIM, MICHAEL WELLER, AUSTIN STAFFORD, EMIL PETKOV, KIMBERLY SCHULTZ, MATTHEW COOPER, Department of Physics, University of Nevada, Reno, NV, PPDL TEAM — Studies of hard x-ray (HXR) emission, electron and ion beam generation in z-pinch and laser plasmas are important for Inertial Confinement Fusion (ICF) and development of HXR sources from K-shell and L-shell radiation. The characteristics of HXR and particle beams produced by implosions of planar wire arrays, nested and single cylindrical wire arrays, and X-pinches were analyzed on 100 ns UNR Zebra generator with current up to 1.7 MA. In addition, the comparison of characteristics of HXR and electron beams on Zebra and 350 fs UNR Leopard laser experiments with foils has been performed. The diagnostics include Faraday cups, HXR diodes, different x-ray spectrometers and imaging systems, and ion mass spectrometer using the technique of Thomson parabola. Future work on HXRs and particle beams in HED plasmas is discussed.

[1]This work was supported by the DOE/NNSA Cooperative agreement DE-NA0001984 and in part by DE-FC52-06NA27616. This work was also supported by the Defense Threat Reduction Agency, Basic Research Award # HDTRA1-13-1-0033, to University of Nevada, Reno.

Ishor Shrestha
Department of Physics, University of Nevada, Reno, NV

Date submitted: 12 Jul 2013 Electronic form version 1.4