Contribution ID : **117** Type : **not specified**

12.42 Study of 1D spatial resolution in crystal x-ray spectroscopy*

Wednesday, 18 April 2018 20:31 (120)

1D 5-μm FWHM spatially resolved high resolution x-ray spectroscopy is needed to diagnose HEDP plasmas with large temperature and density gradients. Magnification is required to overcome the 50-100 μm detector resolution. Experiments with spherical crystals in a sagittally focusing geometry demonstrated ˜12 μm resolution. New experiments will attempt to achieve the theoretical limit. To avoid source-size broadening, a modified Johann configuration is being developed, with the source inside the Rowland circle, close to the crystal, and the detector on the Rowland circle. A quasi-toroidal crystal with minor radius varying along the crystal axis [M. Bitter et al., this conf.] will achieve sagittal focusing at all energies. Initial applications are EXAFS experiments on NIF. Proof of principle experiments will be presented. *Performed under the auspices of the U.S. DoE by Princeton Plasma Physics Lab. under contract DE-AC02-09CH11466 and by Lawrence Livermore National Lab. under contract DE-AC52-07NA27344

Primary author(s) : HILL, K. W. (Princeton Plasma Physics Lab.)

Co-author(s) : BITTER, M. (Princeton Plasma Physics Lab.); GAO, L. (Princeton Plasma Physics Lab); KRAUS, B (Princeton Plasma Physics Lab); EFTHIMION, P. C. (Princeton Plasma Physics Lab); STRATTON, B. C. (Princeton Plasma Physics Lab); SCHNEIDER, M. B. (Lawrence Livermore National Lab); CHEN, H (Lawrence Livermore National Lab); KAUFMANN, R. L. (Lawrence Livermore National Lab.); MACPHEE, A. G. (Lawrence Livermore National Lab); THORN, D. B. (Lawrence Livermore National Lab); COPPARI, F. (Lawrence Livermore National Lab); PING, Y. (Lawrence Livermore National Lab); KILLEBREW, K. (Lawrence Livermore National Lab); CLEMENTS, S. (Lawrence Livermore National Lab); AYERS, J. (Lawrence Livermore National Lab)

Presenter(s) : HILL, K. W. (Princeton Plasma Physics Lab.); BITTER, M. (Princeton Plasma Physics Lab.); GAO, L. (Princeton Plasma Physics Lab); KRAUS, B (Princeton Plasma Physics Lab); EFTHIMION, P. C. (Princeton Plasma Physics Lab); STRATTON, B. C. (Princeton Plasma Physics Lab); SCHNEIDER, M. B. (Lawrence Livermore National Lab); CHEN, H (Lawrence Livermore National Lab); KAUFMANN, R. L. (Lawrence Livermore National Lab.); MACPHEE, A. G. (Lawrence Livermore National Lab); THORN, D. B. (Lawrence Livermore National Lab); COPPARI, F. (Lawrence Livermore National Lab); PING, Y. (Lawrence Livermore National Lab); KILLEBREW, K. (Lawrence Livermore National Lab); CLEMENTS, S. (Lawrence Livermore National Lab); AYERS, J. (Lawrence Livermore National Lab)

Session Classification : Session #12, Wednesday Night Poster Session