

HTPD 2018



Contribution ID : 338

Type : not specified

8.39 Characterizing the modulation transfer function for X-ray radiography for HED experiments

Tuesday, 17 April 2018 16:01 (120)

X-ray radiography is a powerful tool for diagnosing high energy density states. In particular, face-on X-ray radiography is used in material strength experiments on the NIF. In these experiments, Rayleigh-Taylor (RT) growth is monitored in samples with pre-formed ripples driven to high pressure with the departure from classical RT growth attributed to material strength. In this experiment, the ability to resolve the opacity contrast between peaks and valleys of the RT growth is critical for accurate determination of the growth factor. Here we study the effect of polychromaticity of the backlighter and a large spatial extent of the source due to high-energy x-ray transmission. The performance of these measurements can in part be characterized by the modulation transfer function (MTF), which is estimated using the knife-edge technique. We present results from recent experiments using the NIF.

*This work was performed under the auspices of the Lawrence Livermore National Security, LLC, (LLNS) under Contract No. DE-AC52-07NA27344.

Primary author(s) : PARK, Hye-Sook (LLNL)

Co-author(s) : KRYGIER, A. (LLNL); HUNTINGTON, C. M. (LLNL); MCNANEY, J. M. (LLNL); GUMBRELL, E. (AWE)

Presenter(s) : PARK, Hye-Sook (LLNL); KRYGIER, A. (LLNL); HUNTINGTON, C. M. (LLNL); MCNANEY, J. M. (LLNL); GUMBRELL, E. (AWE)

Session Classification : Session #8, Tuesday Afternoon Poster Session