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First Tests on OMEGA of a Bubble Chamber for Neutron Detection M.C. GHILEA, D.D. MEYERHOFER, T.C. SANGSTER, D.J. LONOBILE, A. DILLENBECK, Laboratory for Laser Energetics, U. of Rochester, R.A. LERCHE, LLNL, L. DISDIER, CEA — To provide additional options for imaging at NIF, a high-resolution, reduced-line-of-sight detector was developed and tested at LLE. The detector is based on a high-pressure freon, 115-bubble chamber with an expansion mechanism controlled by a linear motor. A CCD camera is used to photograph the bubbles in parallel, monochromatic light, while a Schlieren disk is used to enhance the contrast of the image. With bubble diameters in the range of 100 μm , the achieved spatial resolution is significantly better than more-conventional pixilated arrays. The higher spatial resolution can be utilized to significantly shorten the neutron flight path. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement DE-FC52-92SF19460.

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