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# 14.30 One Dimensional Imager of Neutrons (ODIN) on the Z machine

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We recently developed a one-dimensional imager of neutrons (ODIN) on the Z facility. The instrument is designed for MagLIF experiments, which produce DD neutron yields ˜3e12 and, from x-ray imaging, produce a 1-cm long, ˜100-μm diameter stagnation column. The small radial extents and present yields precluded useful radial resolution so a one-dimensional imager was developed. The imaging component is 10-cm thick tungsten slit; a rolled-edge slit limits variations in acceptance angle along the source. CR39 was chosen as a detector due to its negligible sensitivity to the bright x-ray environment in Z. A layer of high density poly-ethylene is used to enhance the sensitivity of the CR39. We present data from fielding the instrument on Z, demonstrating reliable imaging and track densities consistent with diagnosed yields. For yields ˜3e12 we obtain resolutions ˜500 μm with good signal to noise. Finally, we show planned modifications to allow co-liner x-ray imaging to provide better registration to other diagnostics. Sandia National Laboratories is a multimission laboratory managed and operated by NTESS, LLC, a wholly owned subsidiary of Honeywell International, Inc., for the U.S. DOE's NNSA under contract DE-NA-0003525. Work at LLNL was performed under NNSA Contract DE-AC52-07NA27344

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