

Abstract Submitted  
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**Experimental progress toward magnetized liner inertial fusion on Z<sup>1</sup>** DANIEL SINARS, MARK HERRMANN, MICHAEL CUNEO, DEREK LAMPPA, ANDREW LOPEZ, RYAN MCBRIDE, DEAN ROVANG, DAVID HANSON, ERIC HARDING, CHARLES NAKHLEH, STEPHEN SLUTZ, ROGER VESEY, ADAM SEFKOW, KYLE PETERSON, Sandia National Laboratories, Albuquerque, NM 87185, USA — Yields exceeding 100 kJ may be possible on the 25 MA Z facility at Sandia using the implosion of cylindrical metal liners onto magnetized ( $>10$  T) and preheated (100-500 eV) deuterium-tritium fuel [S.A. Slutz et al., Phys. Plasmas 17, 056303 (2010)]. The fusion fuel in such targets absorbs about 100 kJ, so a 100 kJ yield would be ‘scientific breakeven.’ Suitable liner targets (Al and Be) have been fabricated and used in experiments on the magneto-Rayleigh-Taylor instability. Magnetic field coil prototypes for  $>10$  T axial fields are being tested. Preheat experiments using the multi-kJ Z-Beamlet laser are planned. Cryogenic deuterium fuel systems have been developed. Integrated magnetized liner inertial fusion (MagLIF) tests using deuterium fuel are expected in 2013.

<sup>1</sup>Sandia is a multiprogram laboratory operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy’s National Nuclear Security Administration under contract DE-AC04-94AL85000.

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