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Preliminary results from the first integrated Magnetized Liner Inertial Fusion (MagLIF) experiments on the Z accelerator* M.R. GOMEZ, S.A. SLUTZ, A.B. SEFKOW, A.J. HARVEY-THOMPSON, T.J. AWE, M.E. CUNEO, M. GEISSEL, M. HERRMANN, C. JENNINGS, D. LAMPPA, M. MARTIN, R.D. MCBRIDE, D.C. ROVANG, D. SINARS, I.C. SMITH, Sandia National Labs — Sandia National Laboratories' Z Machine [1] provides a drive current of up to 27 MA with 100 ns risetime to a magnetically-driven load. Magnetized Liner Inertial Fusion (MagLIF) [2] is the main focus of the inertial confinement fusion program on Z. The MagLIF concept uses an imploding metallic cylindrical liner to compress magnetized, pre-heated fusion fuel. Simulations indicate that fusion yields on the order of 100 kJ (5e16 DT neutrons) are achievable with a drive current of 27 MA in 100 ns, a laser preheat of 8 kJ in 8 ns, an applied axial B-field of 30 T, and deuterium-tritium fusion fuel. The first fully integrated MagLIF experiments are scheduled to be conducted on Z late summer 2013. These tests will utilize a drive current of 16 MA, a laser preheat of 2 kJ in 2 ns, an applied B-field of 10 T, and deuterium fuel. With these reduced parameters, simulations predict yields greater than 1e10 DD neutrons. [1] M. E. Savage, et al., 18th International Pulsed Power Conference Proceedings pp. 983-990 (2011). [2] S. A. Slutz et al., Phys. Plasmas 17, 056303 (2010). *Sandia National Laboratories is a multi-program laboratory managed and 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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