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Title:	PHELIX
Author(s):	C. L. Rousculp (X-1-PTA) P. J. Turchi (P-DO) W. A. Reass (AOT-RFE) D. M. Oro (P-23) F. E. Merrill (P-25) J. R. Griego (MST-7) R. E. Reinovsky (X-DO)
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PHELIX

C. L. Rousculp, P. J. Turchi, W. A. Reass, D. M. Oro, F. E. Merrill, J. R. Griego, and R. E. Reinovsky

The Precision, High-Energy Density, Liner Implosion eXperiment (PHELIX) pulsed power driver is currently under development at Los Alamos National Laboratory. When operational PHELIX will provide 0.5-1.0 MJ of capacitively stored energy into cm size liners which will reach implosion velocities of 1-4 km/s with approximately 10-20 microsecond implosion time. Peak load currents will be in the 5-10 MAmp range. To do this the machine will utilize a reusable, multi-turn primary, single-turn secondary transformer to couple the 100-120 kV Marx capacitor system to the load. The transformer has been designed toward a coupling coefficient of 0.9.

PHELIX is being designed to be portable with only an 8 x 25 ft^2 footprint. This will allow the machine to be taken to the experiment designer's diagnostic of choice. The first such diagnostic will the LANL proton-radiography facility. There the multi-frame, high-resolution, imaging capability will be used to study hydrodynamic and material phenomena.