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**A Compact Pulser for Magnetically Driven Isentropic-Compression Experiments** R.B. SPIELMAN, Ktech Corporation, M. BAVAY, J.A. MERVINI, Ivanhoe Technologies Inc., G. AVRILLAUD, ITHPP — The use of magnetic fields to isentropically compress materials for equation-of-state studies has been demonstrated on Sandia National Laboratories' Z machine. Sharing similarities with the GEPI pulser at the Centre de Etudes de Gramat in France, a compact pulser has been designed and built specifically for isentropic compression experiments. In order to be compact and low cost, the design uses a solid dielectric transmission line to couple current from eight low-inductance Haefely capacitors that are switched with ultra-low-inductance multi-channel gas switches. A peaking stage made of 72 General Atomics capacitors enhanced by a low-inductance, multi-channel peaking switch brings the fundamental rise time of the pulser down to 350 ns (10-90%). A varaible inductance in parallel with the peaking switch as well as using various gases in the switch allow us to control the details of the current wave shape. The pulser delivers a peak current of 4 MA at a charge voltage of 80 kV into a short circuit. The rise time can be lengthened to greater than 650 ns to deliver a current of 4.2 MA. The performance of this pulser will be described along with potential design changes that would provide decreases in current rise time and increases in current delivered to real world loads.

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