Abstract Submitted
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VELOCE - A Compact Pulser for Magnetically Driven Isentropic Compression Experiments[1] GILLES AVRILLAUD, MICHAEL DELCHAMBRE, JEAN GUERRE, FREDERIC BAYOL, FABRICE CUBAYNES, ITHPP, BORIS KOVALCHUK, HCEI, MATHIAS BAVAY, JOE MERVINI, RICK SPIELMAN, ITI, JAMES ASAY, CLINT HALL, RANDY HICKMAN, TOMMY AO, SNL, MICHAEL WILLIS, KTECH, YOGENDRA GUPTA, JAMES ASAY, CORY BAKEMAN, WSU — Sharing similarities with the Gepi pulser dedicated to Isentropic Compression Experiments, Veloce, an even more compact electrical pulser has been designed and built in duplicate for SNL and WSU (LxWxH=3.5x2.5x2m^3). This type of machines complements gun facilities in the study of materials. In order to achieve a broad loading capability and fast turn around, the design is built around a solid dielectric transmission line to couple current from eight low inductance capacitors and switches. Peaking capacitors enhanced by a low inductance, multi-channel sharpening switch reduces the quarter period of the pulser down to 470 ns (0-100%). Gas mixtures in the switch cavity and inductances in parallel allow modifying the shape of the induced pressure wave. At 80kV of charge voltage, the peak current reaches approximately 3.5MA. Design of the pulser, range of pressures and velocities, as well as potential applications will be presented.

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