

Abstract Submitted  
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**Time dependent VISAR current diagnostic for pulsed power loads**<sup>1</sup> KYLE PETERSON, RAYMOND LEMKE, Sandia National Labs — B-dot probes, placed in the power feed slightly upstream of the load, are the standard technique of measuring the current delivered to pulsed power loads such as Z pinches. Since current losses may still occur downstream of the probe, the measured signal may not represent the current actually delivered to the load. In this paper, a method is proposed to measure the time dependent current actually delivered to the load with potentially much higher precision than B-dot probes. In this method, the velocity induced by magnetic pressure exerted on a metallic wafer is recorded with a velocity interferometer for any reflector (VISAR) probe located after the load. Then, a parallel optimization code is used to vary the current profile in 1D simulations until the calculated velocity profile matches the experimentally measured velocity profile. Design constraints, sensitivity, and error will be discussed as well as considerations for an intense radiative environment.

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