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**Pinch dynamics deduced from terminal current and voltage measurements in a Dense Plasma Focus** MAHADEVAN KRISHNAN, BRIAN BURES, ROBERT MADDEN, Alameda Applied Sciences Corporation — Terminal measurements of current and voltage in a dense plasma focus (DPF) are used with a circuit model to deduce the dynamical evolution of the plasma inductance. This inductance in turn gives the dynamical impedance and hence the peak voltage at the pinch, which is found to be  $\sim 50\text{kV}$  or higher, for a  $\sim 10\text{kV}$  bank voltage. Measurements are described of pinches in a  $130\text{kA}$  and a  $300\text{kA}$  DPF, with various gases. The dynamical inductance also measures the evolution of the radius of the current carrying region of the imploding pinch. The high pinch voltages and small pinch radii shed light on the neutron production mechanism in such DPFs.

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