

Abstract Submitted
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The Effect of Interchanging the Polarity of the Dense Plasma Focus on Neutron Yield¹ SHENG JIANG, DREW HIGGINSON, ANTHONY LINK, ANDREA SCHMIDT, Lawrence Livermore National Lab — The dense plasma focus (DPF) Z-pinch devices can serve as portable neutron sources when deuterium is used as the filling gas. DPF devices are normally operated with the inner electrode as the anode. It has been found that interchanging the polarity of the electrodes can cause orders of magnitude decrease in the neutron yield¹. Here we use the particle-in-cell (PIC) code LSP^{2,3} to model a DPF with both polarities. We have found the difference in the shape of the sheath, the voltage and current traces, and the electric and magnetic fields in the pinch region due to different polarities. A detailed comparison will be presented. 1. G. Decker, W. Kies and G. Pross, Phys. Lett. 89A, 393 (1982) 2. D. R. Welch, D. V. Rose, R. E. Clark, T. C. Genoni, and T. P. Hughes, Comput. Phys. Commun. 164, 183 (2004) 3. A. Schmidt, V. Tang, D. Welch, Phys. Rev. Lett. 109, 205003 (2012)

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Sheng Jiang
Lawrence Livermore National Lab

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