

Abstract Submitted
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A Simple Model for Microchannel Plate Output E.C. HARDING, R.P. DRAKE, University of Michigan, Ann Arbor, MI, J.L. WEAVER, Naval Research Laboratory, Washington, DC — Microchannel plates (MCPs) are an essential component in an imaging diagnostic known as an x-ray framing camera, which is currently used by NIF, Omega, Nike, and Z to image radiation imploded targets. An MCP is used to convert incident x-ray photons into electrons with gains of 10^2 to 10^4 . These electrons are accelerated into a phosphor and the subsequent visible light is captured with a CCD. A variety of parameters, such as photocathode material type (Au, Ni, CsI), photocathode coating depth, and MCP bias angle, affect the gain and gain variations in the MCP electron output. This poster presents initial results of a simple 3D MCP computer model along with an experimental comparison. Several ideas for increasing MCP imaging performance by reducing gain variations and increasing MCP quantum efficiency are presented. Work supported by the Naval Research Laboratory, National Nuclear Security Administration under the Stewardship Science Academic Alliances program through DOE Research Grant DE-FG52-03NA00064, and through DE FG53 2005 NA26014, and Livermore National Laboratory.

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