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Improved Microchannel Plate Modeling and Experimental Comparisons in an X-ray Framing Camera Setup[1] E.C. HARDING, R.P. DRAKE, R.K. RATHORE, S.D. LOUNIS, University of Michigan, J.L. WEAVER, Naval Research Laboratory Plasma Physics Division Washington DC — We have developed an improved 3D microchannel plate (MCP) model that includes detailed end-spoiling effects and statistical gain variations. Our aim is to model the pulse height distribution and detection quantum efficiency of an MCP based x-ray framing camera operated in DC mode. We attempt to validate our model with experimental results from MCPs with two different photocathode coating schemes: a layering of Nb, Cu, and Au and CsI. Once validated the model is used to investigate possible MCP based imaging performance improvements by adjusting the pore geometry and coating schemes. In particular, modeling results and experimental data from MCPs with square pores (10x10μm) are presented.

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