

Abstract Submitted
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Electronic Measurement of Microchannel Plate Pulse Height Distribution ELISEO GAMBOA, CHANNING HUNTINGTON, ERIC HARDING, MARIANO LOWERNSTERN, R. PAUL DRAKE, University of Michigan — Microchannel plates are a central component to the x-ray framing cameras used in many plasma experiment diagnostic systems. The microchannel plate serves as an amplifying element, increasing the electronic signal from incident radiation by a factor of $10^3 - 10^5$, with a broad pulse-height distribution. Seeking to improve the photon-to-electron conversion efficiency of x-ray cameras, we will characterize the pulse-height distribution of the electron output from a single microchannel plate. Replacing the framing camera's phosphor-coated fiber optic screen with a charge-collection plate and coupling to a low-noise multichannel analyzer, we will quantify the total charge generated per photon event over a range of x-ray energies and incident fluxes. Hypothesizing that the plate saturation is a function of incident photon flux, we will calculate the saturation regime for microchannel plates operated in a single-plate configuration. The electronically-measured pulse height distribution will be compared to the same data collected via a purely-optical method, as described previously (E. C. Harding and R. P. Drake, *Rev. Sci. Instrum.* 77, 10E312 (2006)).

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