Abstract Submitted
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Development of a novel position-sensitive microchannel plate detector[1] BLAKE WIGGINS, DAVINDER SIWAL, ROMUALDO DESOUZA, Indiana University — Position sensitive microchannel plate (MCP) detectors which measure the position of an incident electron, ion, or photon, are useful in imaging applications. Recently, a novel detector, which utilizes an induced approach to provide position sensitivity, has been developed.[2] In the prototype detector, using only the zero-crossing point of the inherently bipolar signals, a position resolution of 466 μm (FWHM) has been achieved. Implementing a differential readout may improve on this resolution. To realize this differential approach, a better understanding of the dependence of the induced signal shape on the position of the electron cloud is required. To characterize the dependence of the induced signal shape on position a resistive anode (RA) has been incorporated into the detector. The RA will allow determination of the centroid of the electron cloud. Factors impacting the position resolution obtained with the RA will be discussed and the achieved position resolution of 157 μm (FWHM) will be presented.

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[2]Using induced signals to sense position from a microchannel plate detector, R. T. deSouza, Z. Q. Gosser, and S. Hudan, Rev. Sci. Instrum. 83, 053305 (2012).

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