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**Measuring position in 2-dimensions using induced signals in a microchannel plate detector**[1] BLAKE WIGGINS, ROMUALDO DESOUZA, Indiana Univ - Bloomington — Position-sensitive microchannel plate (MCP) detectors play an important role in the detection of photons, electrons, ions, and neutrons. Recently, a novel approach has been developed to provide position-sensitivity for an MCP detector. In this approach, namely the induced signal approach, the position of the incident particle is determined by sensing the electron cloud emanating from a MCP stack. The induced signals are inherently bipolar, where the negative lobe of the induced signal corresponds to the approach of the electron cloud to the sense wires and the positive lobe corresponds to the recession of the electron cloud from the sense wires. The zero-crossing point is the time at which the centroid of the charge cloud passes the wire plane. For a single incident electron, a spatial resolution of 103 $\mu$m (FWHM) has been achieved by utilizing the zero-crossing point of the induced signals. General considerations suggest that this spatial resolution can be improved by using the entire pulse shape information. The fundamentals of the induced signal approach as well as its implementation in slow neutron radiography will be presented.

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