Position of Ion Impact Determined via Detection of Secondary Electrons[1]

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The factors affecting the performance of a Position Sensitive Timing Detector (PSTD), based on the detection of secondary electrons ejected from a foil by the passing ion, were investigated. We studied effects of multiple scattering in the foil, electron transport from foil to micro-channel plate detector (MCP) surface, and signal processing hardware. We conclude that, for detector with foil-to-MCP distance of 5-10 cm, electron transport limits the devices currently in use to resolution worse than 2 mm (fwhm).

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