MCP

Microchannel Plate PMT (MCP)

A microchannel plate PMT is a sensitive photon detector. It consists of an array of glass capillaries (10-25 µm inner diameter) that are coated on the inside with a electron-emissive material. The capillaries are biased at a high voltage. Like in the PMT, an electron that strikes the inside wall of one of the capillaries creates an avalanche of secondary electrons. This cascading effect creates a gain of 103 to 106 and produces a current pulse at the output. The timing jitter of MCPs is sufficiently small to perform time-resolved photon counting on a sub-nanosecond- scale, usually outperforming PMTs. Good but also expensive MCPs can achieve timing uncertainties as low as 20ps. Microchannel plates are also used as an intensifier for low-intensity light detection with array detectors.

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