

Exploring charge multiplication for fast timing with silicon sensors

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Charge multiplication in silicon sensors (discovered by RD50 institutions) might have applications beyond off-setting charge lost due to trapping during the drift of electrons or holes.

Charge multiplication makes silicon sensors more like drift chambers or micro-channel plates, where a modest number of created charges are amplified (by factors of 10,000 or so) and can be used for fast timing.

We will consider the use of silicon detectors for precision position and fast timing measurements.

A possible research program is outlined, and the needed pieces are identified.

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