

Abstract Submitted
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Development of Solid State Electronics for a Spark Chamber

EISEN GROSS, FREDERICK GRAY, Regis University — Spark chambers have been used to detect charged particles in physics since the early part of the 20th century. This very crude method can still be very useful in a classroom, museum, or outreach setting to show evidence of such particles. Older electronics such as vacuum tubes and spark gaps have been still used in recent designs, but they are resource-consuming to maintain and are becoming difficult to procure. These designs also used obsolescent electronics for the discriminators in the trigger circuit. A new design will be presented that uses a fast high voltage transistor switch along with modern comparators and programmable logic. Lower trigger latency has been achieved than in the traditional design. The muon imaging efficiency will be presented.

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