Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Minimal Pixilated Resistive Plate Chamber EDWIN NORBECK, YASAR ONEL, University of Iowa — Two conducting plates, separated by a suitable gas at atmospheric pressure, can be used as a detector for minimum ionizing particles. However, if a spark develops the energy carried by the spark can damage the surface of the plates. The energy available to a spark can be reduced to a harmless level by covering one of the plates with a material with a high resistance. This insulating layer must be thick enough so that transient voltages do not punch holes in the layer (0.2-0.5 mm). The resistance between the front and the back of the layer needs to be large but still small enough so that the surface charge can be replenished in a time of the order of one microsecond. This requires a resistance of the order of 500 $M\Omega/cm^2$, which is in the range of ceramic enamels that are made for application to metal surfaces. The other plate can be divided into pixels, in effect making a number of separate detectors.

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Date submitted: 01 Jul 2009 Electronic form version 1.4