

Development of a Resistive Plate Device with micro-pattern technique.

We present an RPC built with techniques developed for micro-pattern gaseous detectors. It consists in two equal electrode plates made of FR4 substrate with 250 Cu readout strips. A 50 um insulating foil, carrying resistive lines, is glued on top of the substrate. Both the Cu and the resistive strips have a pitch of 400 um and width of 300 um.

The plates are spaced by a 2 mm gap and rotated by 90 deg., providing a 2D tracking capability. With such a device the surface resistivity can be tuned to values below the ones of existing RPC (either glass or phenolic-melamine). The thin separation layer between the electrodes and the readout strips provides a better capacitive coupling of the signal, allowing to operate the detector at lower gain. Moreover, the strip-shaped resistive pattern reduces the induced charge size in the direction perpendicular to the strips. All these features go in the direction of improving the rate capability.

The basic concept of this new device will be presented together with preliminary results of ongoing tests at CERN.

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