



UNIVERSITÄT KARLSRUHE (TH)

Institut für Experimentelle Kernphysik

A Prototype TPC with GEM Readout for TESLA

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Design

Preliminary Results

Further Aims

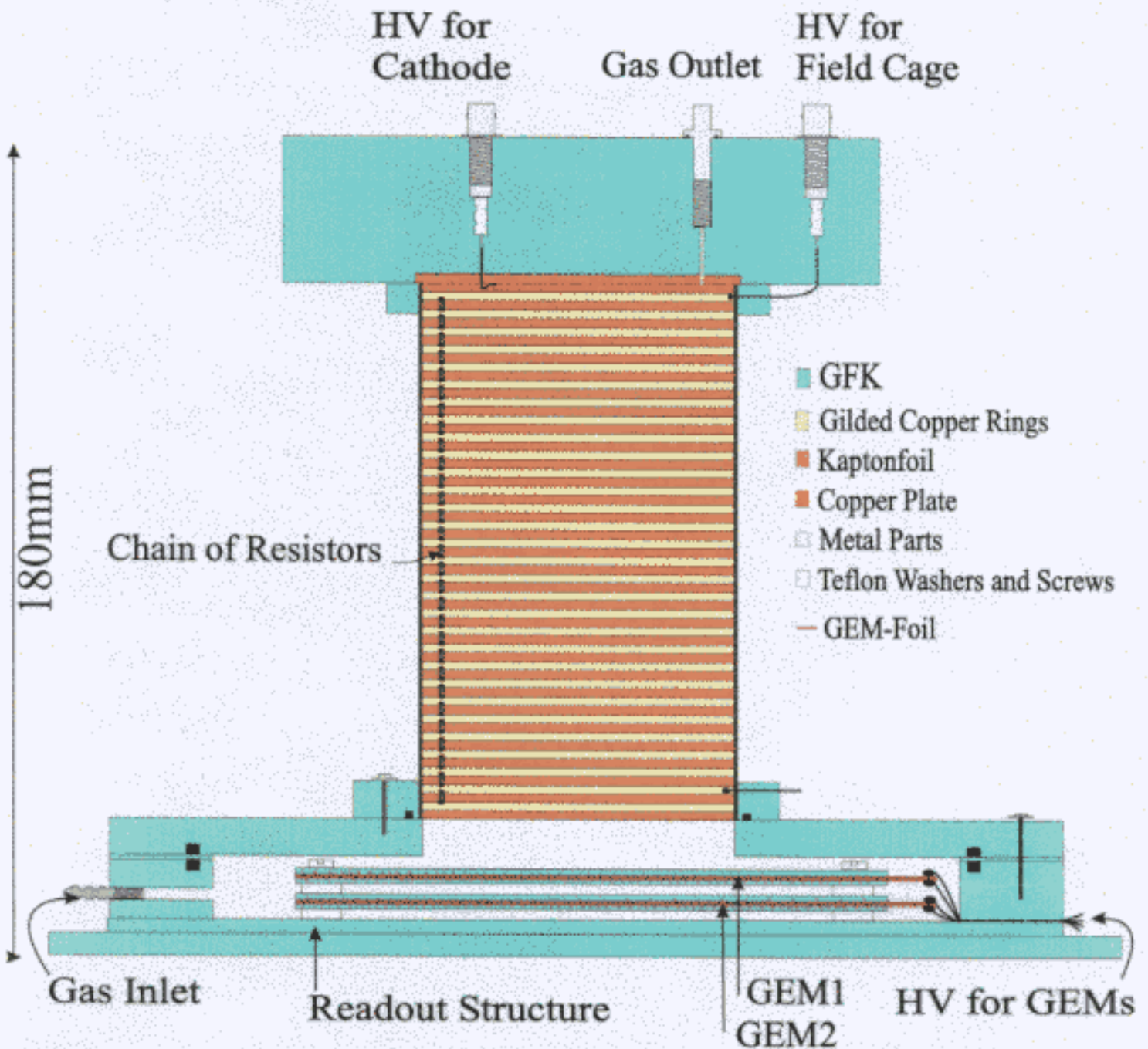


Time Projection Chamber

Dimensions: Induction Field: 2mm
Transfer Field: 2mm
Drift Field: 120mm

GEMs: 140/70/45 100*100mm²

Gas: Argon : Methan (90:10)





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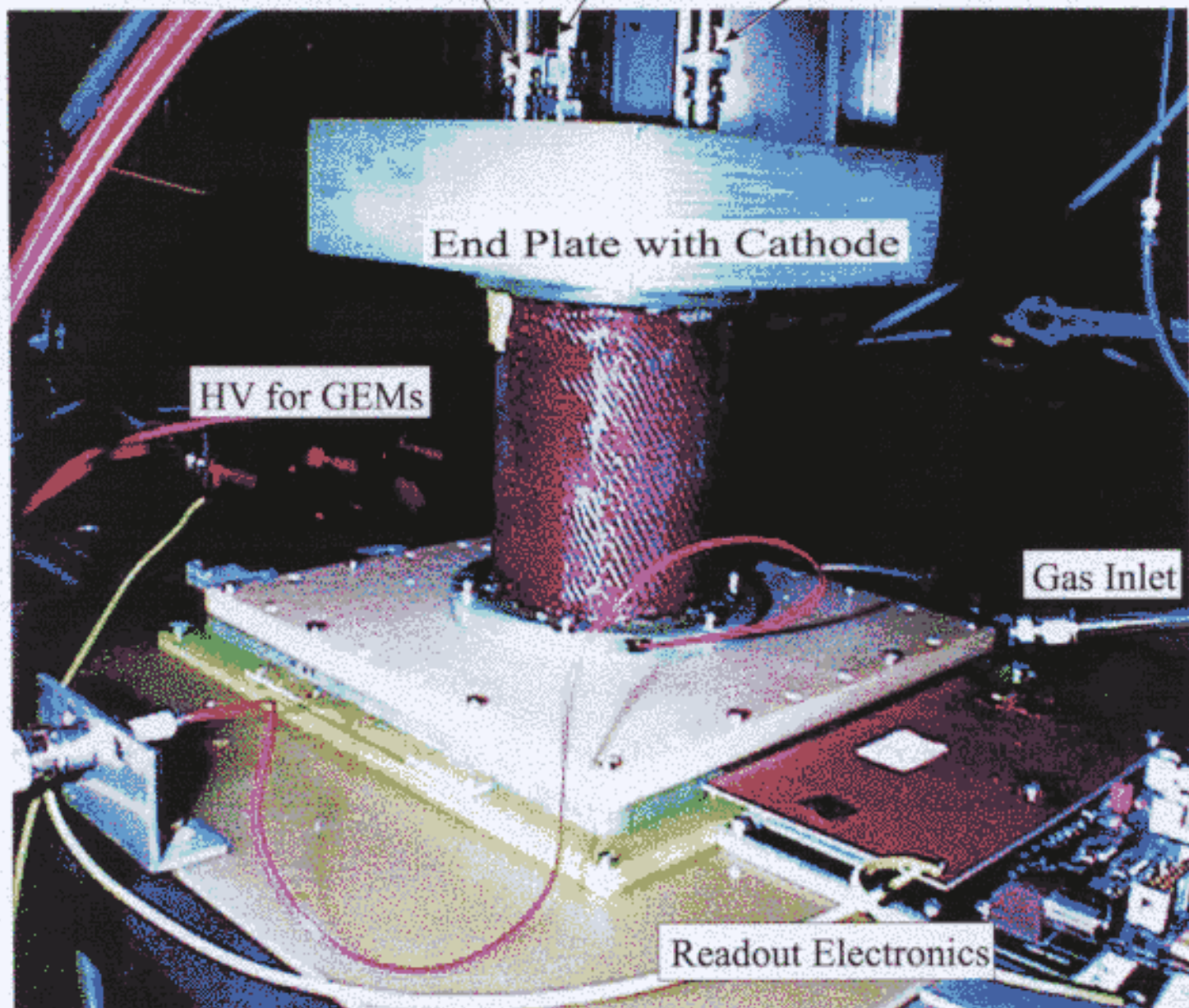
HV for Field Cage Gas Outlet HV for Cathode

End Plate with Cathode

HV for GEMs

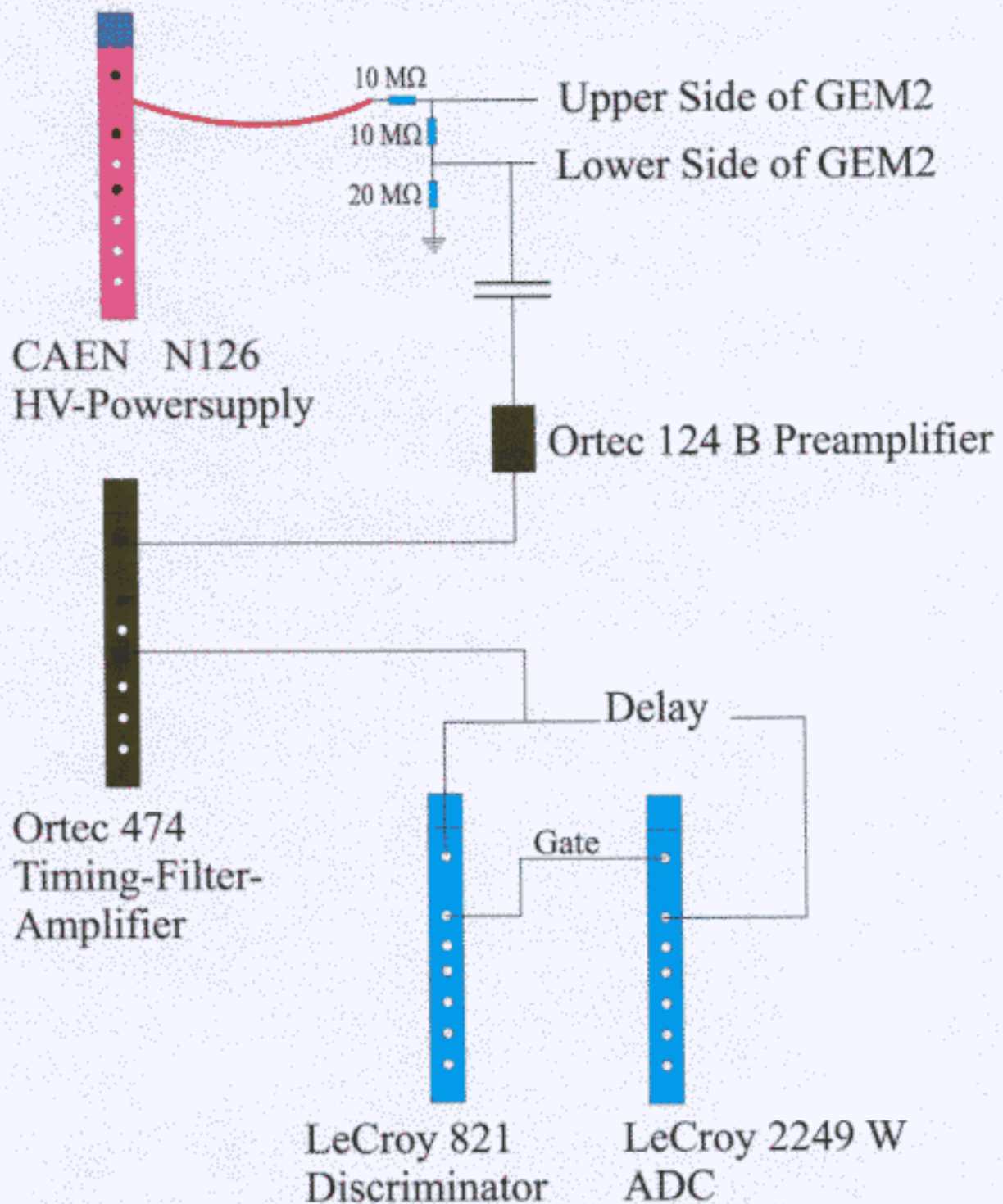
Gas Inlet

Readout Electronics



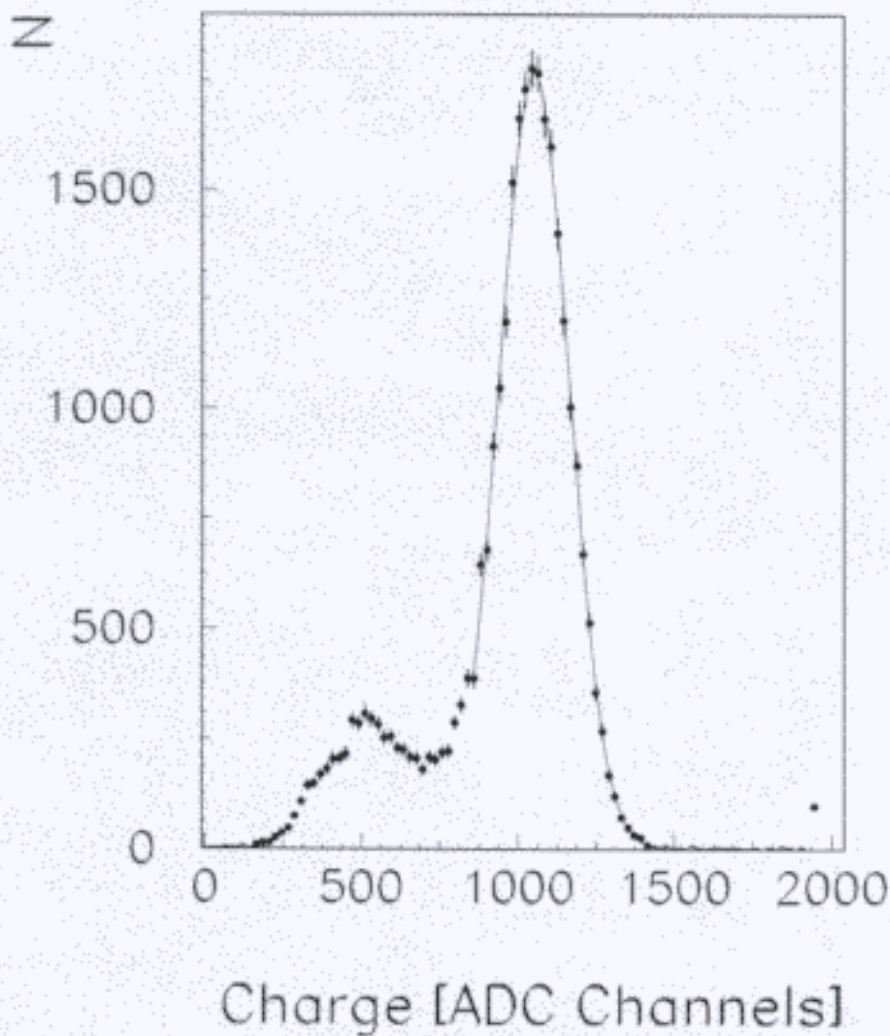


Present Readout





Spectrum of an Iron-55 Source at 10cm of Driftlength



$$\frac{\sigma_{E-Photopeak}}{E_{Photopeak}} = \frac{113}{1050} = 0.11$$



Conclusion

this TPC with 2 GEMs works

Next Step

Readout Strips with a Pitch of $200\mu\text{m}$

Research Plan

Measurement of Clusterwidth

Measurement of Ionfeedback

Rate Capability

Pad Geometry

Test in Magnetic Field



Principal of Measurement of Ionfeedback

