

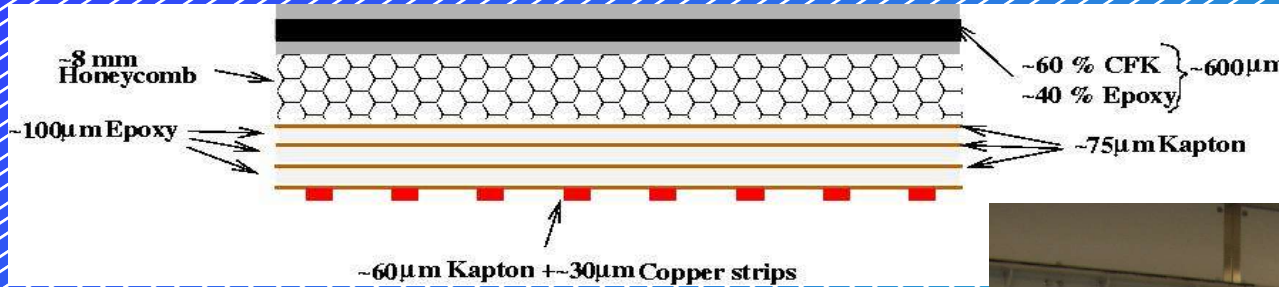
# Hot News from Tracking

Sven Lotze, RWTH Aachen

Montpellier ECFA Study 11/2003

# Field Cage Design (DESY Hamburg)

## NEWIE Röhre

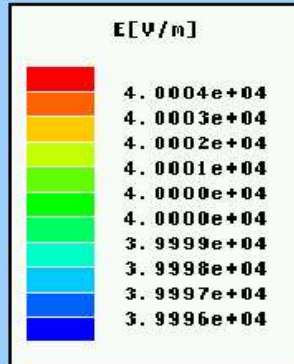


- finally build good
- run in good
- finally test in good
- finally testing



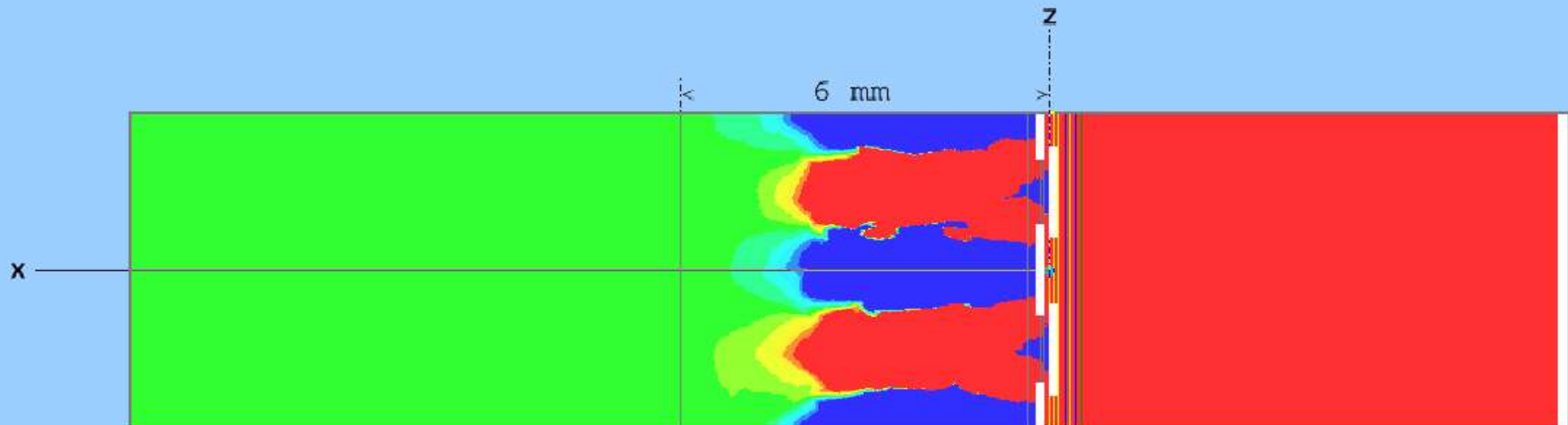
# Field Cage Simulation (Aachen)

## Simulation of Fieldcage



Double sided strips  
Pitch 2.8 mm

1.6 mm copper  
1.2 mm kapton

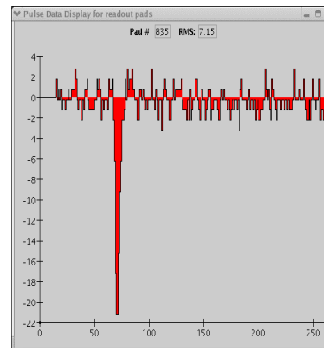
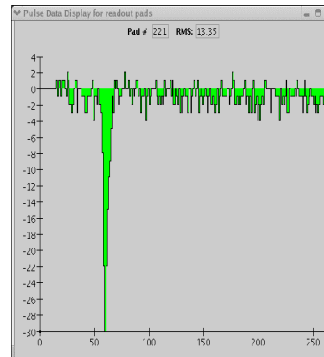
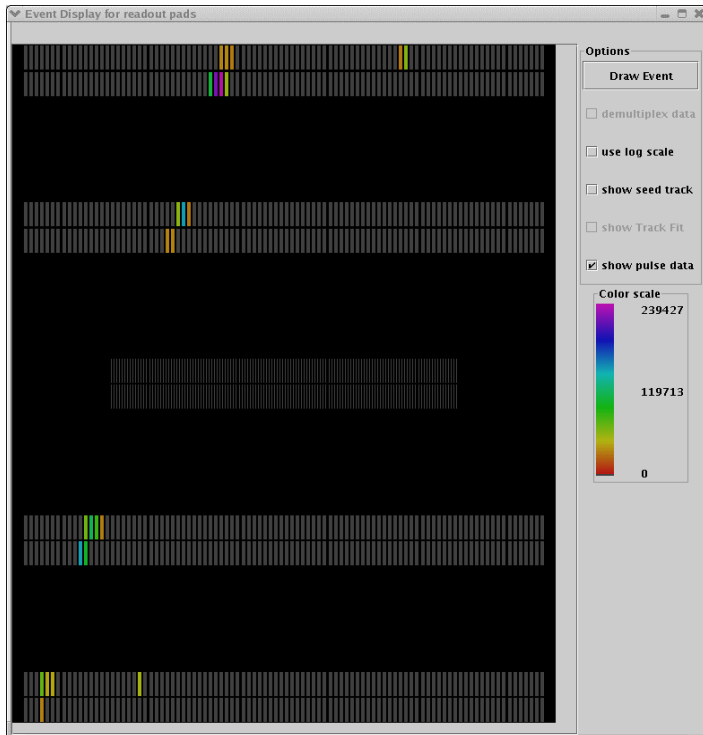
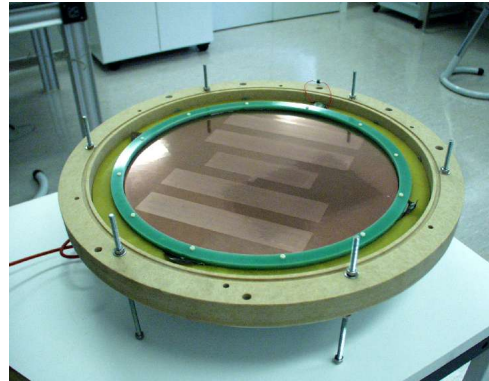


Accuracy better than  $10^{-4}$  in 5 mm distance.

# Micromegas TPC Setup

## Berkeley - Orsay - Saclay

- Micromegas TPC fully operational
- Cosmic ray data taken with several gases
- Magnetic field data-taking next week



# Resolution with Charge Spreading

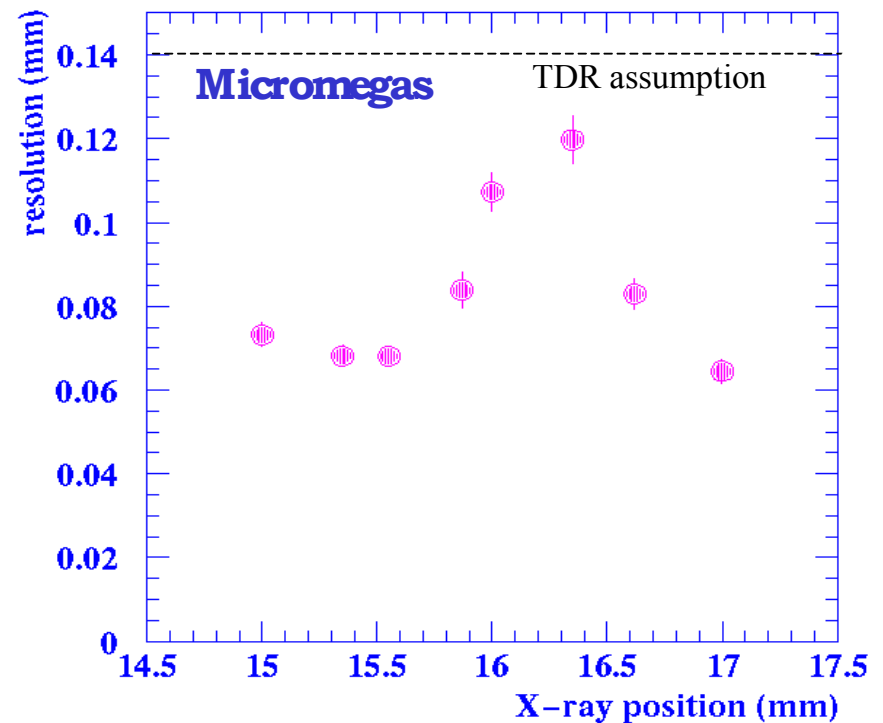
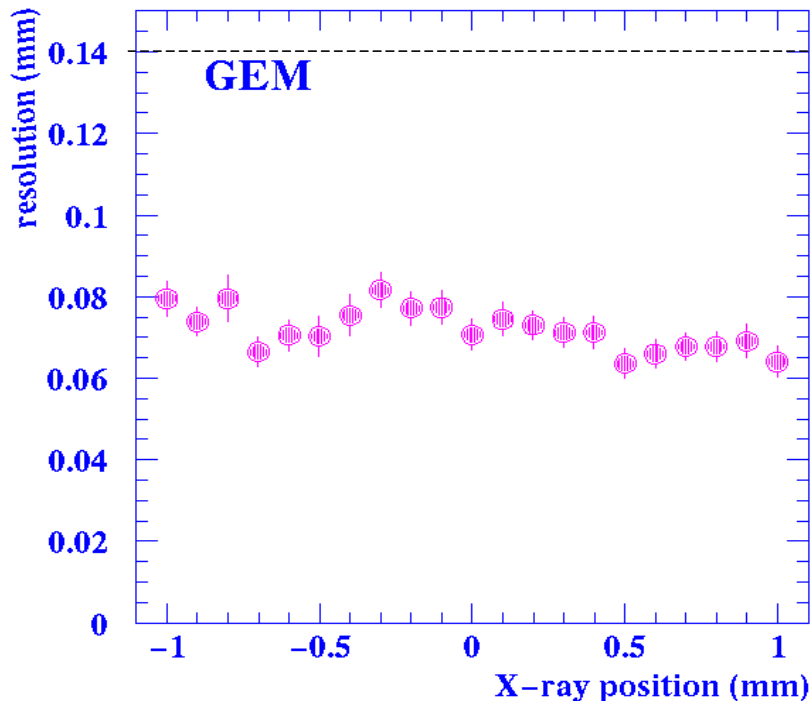
**Carleton-Orsay-Saclay** : spreading the charge with a resistive foil

-> allows a barycenter determination

-> improves the point resolution of GEMs and Micromegas.

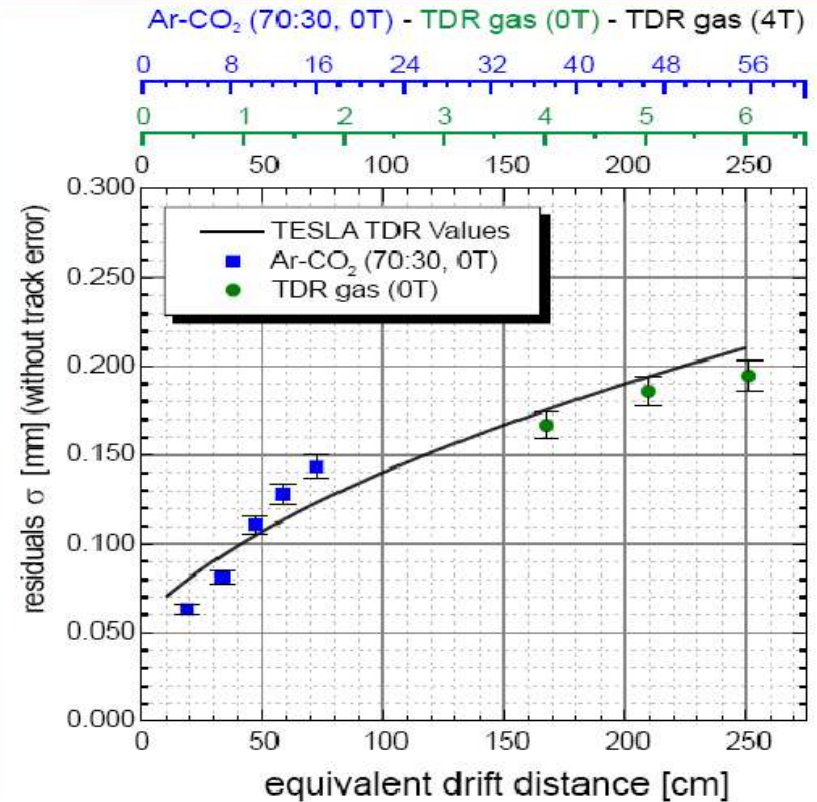
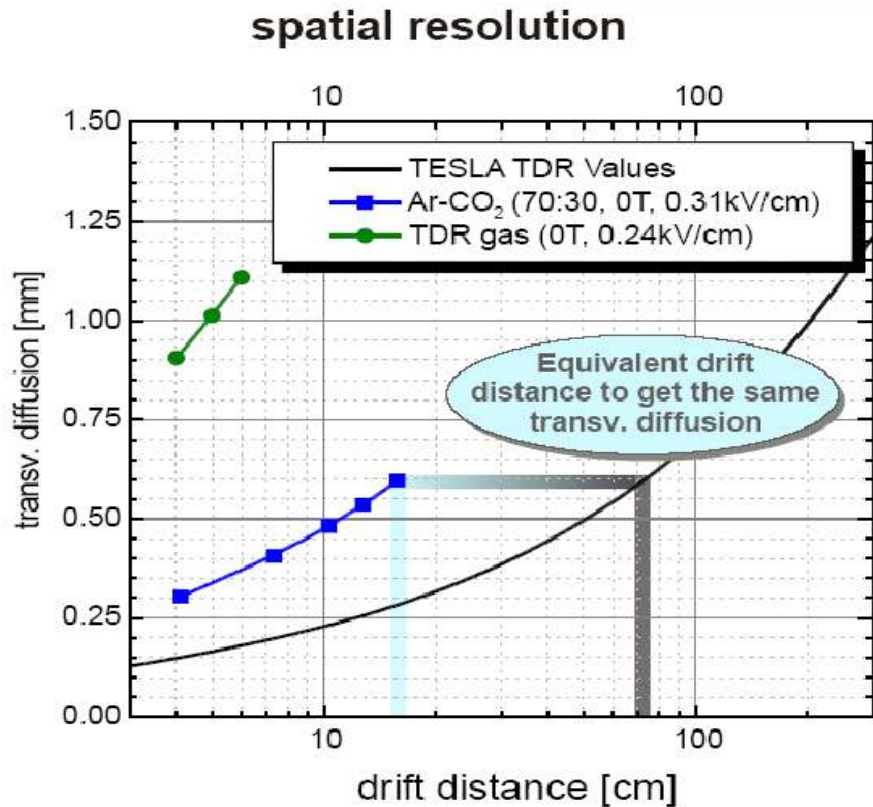
Scan across a  $2 \times 6$  mm pad

Good resolution (not uniform in the Micromegas case, systematics to be understood)



# Test Beam Data (Karlsruhe)

## Spatial resolution



$$D_{TDR,4T} \cdot \sqrt{x_{TDR,4T}} = \sigma_{TDR,4T} = \sigma_{gas,0T} = D_{gas,0T} \cdot \sqrt{x_{gas,0T}}$$



# Test Magnet (DESY Hamburg)

## Stærðfrólað Tímaget

- 15 x 62003 HC (með rafmagn) (axial)
- 72003-02120031 áttlingur (axial)
- Tímaget/kyrr HC (með rafmagn) (axial)
- Tímaget/kyrr áttlingur (með rafmagn) (axial)
- Spigill áttlingur (axial)

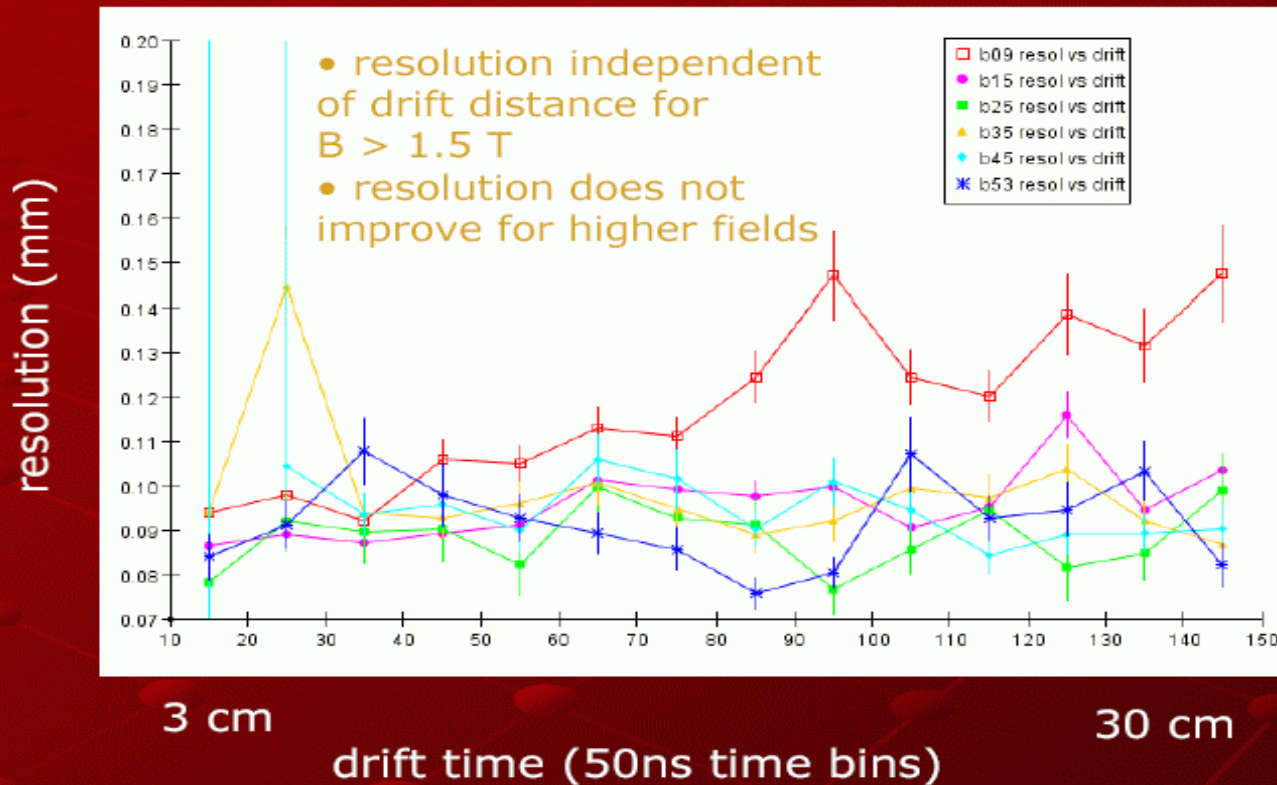
© 2003 DESY Hamburg



# High B-field GEM TPC cosmic ray data (Carleton, Montreal, Victoria)

## Transverse track resolution (P5)

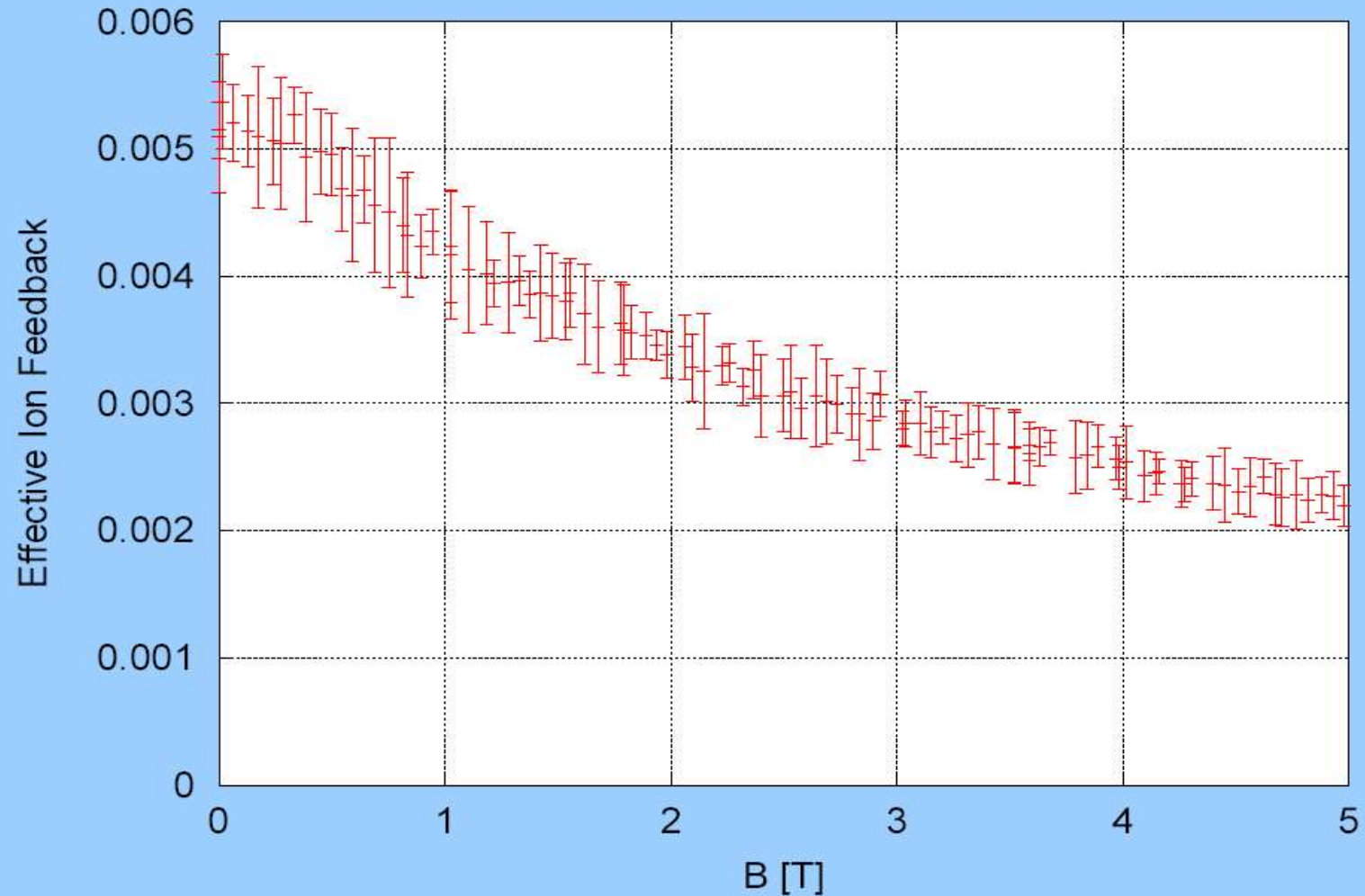
● High B field resolution vs. drift distance:





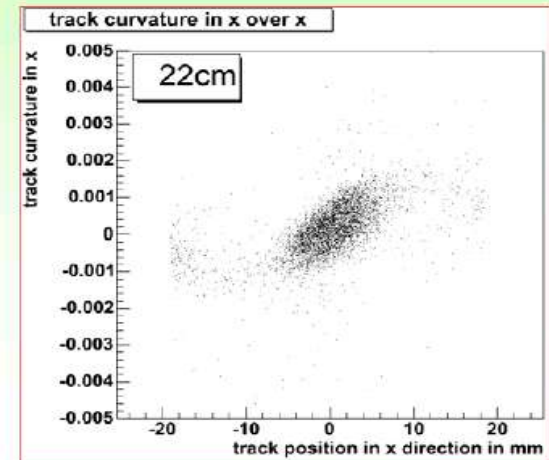
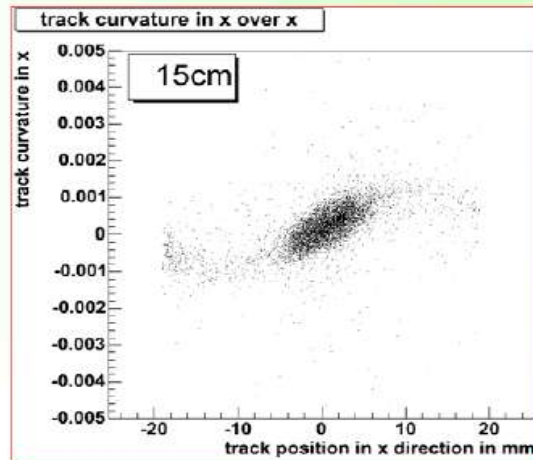
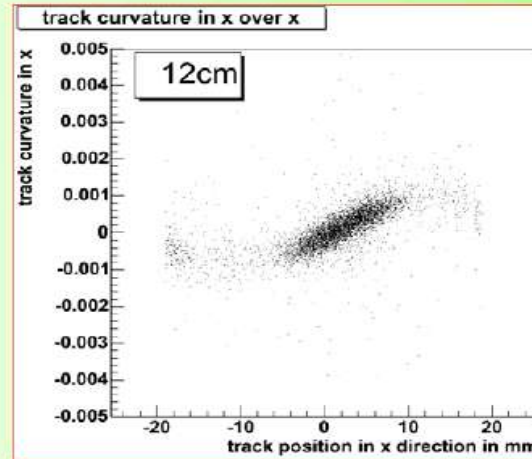
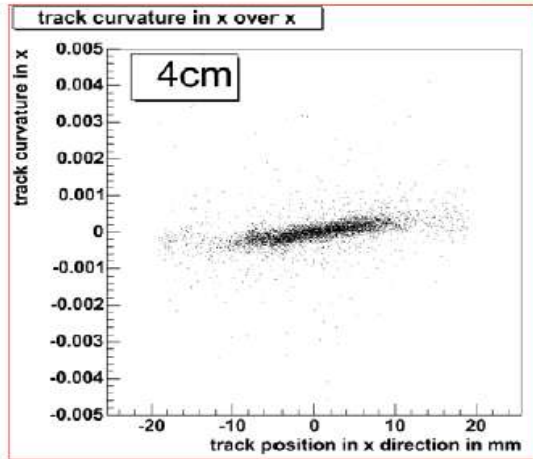
# Ion Feedback vs. B (DESY/Aachen)

## Influence of B Field



# Effects from Ion Feedback (Karlsruhe)

## Track distortions (II)



curvature  $C$  is plotted over  $x$  position of track cluster in top row (= track position)



# Silicon Tracking

## **Report on SiLC: Si-tracking for the Linear Collider**

*SilC: International R&D Collaboration to  
develop Si-tracking technologies for the LC*

*(except  $\mu$ vertex)*

Proposal to PRC-DESY, May 7 and 8, 2003

Addendum to PRC-03-02, on October 31<sup>st</sup>, 2003

*ECFA-LC Workshop, Tracking session, Montpellier November 13<sup>th</sup> to 16<sup>th</sup>, 2003*

*Aurore Savoy-Navarro, LPNHE-Paris/IN2P3-CNRS, France*

**on behalf of the SiLC Collaboration**