

# ATLAS Diamond Sensors Preliminary Report

Christian Gallrapp - CERN  
for ATLAS DPIX

2010-09-29

# Contents

- 1 DPix Collaboration
- 2 Test beam objective
- 3 scCVD diamond CD182
- 4 Diamond Testbeam August 2010

# DPix Collaboration

- DPix Collaboration
  - Bonn
  - Carleton
  - CERN
  - Göttingen
  - Ljubljana
  - Ohio State
  - Toronto
- Test beam crew
  - Malte Backhaus,
  - Daniel Dobos
  - Christian Gallrapp
  - Fabian Hügging,
  - Jens Janssen
  - Alessandro La Rosa
  - Vladislav Libov (EUDET telescope expert)
  - Theresa Obermann
  - Koloina Randrianarivony
  - Adam Robichaud
  - Jens Weingarten

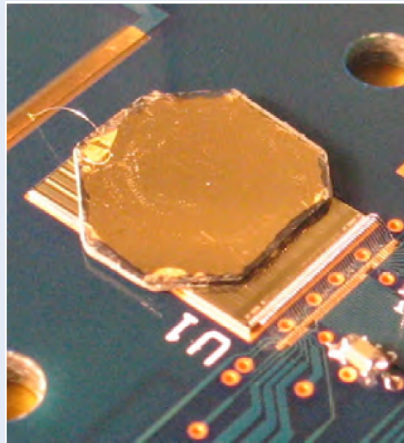
# Test beam objective

- analysis of the spacial resolution of scCVD sensors
- study of the charge collection efficiency
- measurements on pumped and un-pumped diamond

# scCVD diamond CD182

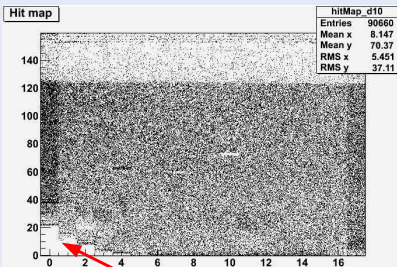
- single crystal CVD diamond
- bump-bonded on ATLAS FE-I3
- Threshold:  $1700 e^-$
- ToT = 30 @  $10 ke^-$
- bias voltage:  $-200 V$
- incidence angle:  $0^\circ$

scCVD diamond



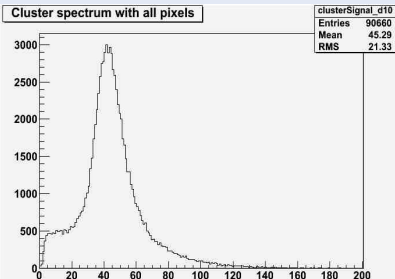
# scCVD diamond CD182

## hitmap for run:12097



missing sensor edge

## TOT-spectrum for run:12097



• peak at  $\approx 43 \text{ ToT} \rightarrow \approx 14.3 \text{ ke}^-$

# Diamond Testbeam August 2010

- about 4M events with un-pumped diamond
- about 4.3M events with pumped diamond
- low data rate due to AMS beam adjustment and SPS problems
- few minor problems with the test setup
- remote datacollection via VNC during the night
- EUDET Travel Allowance for Fabian Hügging, Malte Backhaus, Jens Janssen and Jens Weingarten

## Outcomes:

- encouraging first results
- looking forward to the upcoming IBL test beam

# Thank you

Thank you to the EUDET-Team for the support and the possibility to use the telescope