



# University of Karlsruhe (IEKP) presentation

## GROUP COMPOSITION:

Wim de Boer (Prof., groupleader)

Johannes Bol (PhD student)

Eugene Grigoriev (PhD, physicist)



# Past & present activities in detector development

CMS

RD39

RD48

RD50

Study of basic properties and radiation hardness of Si detectors

**RD19**

**DELPHI**

Pixel detectors

**SUCIMA**

Radiation hard Si microstrip and CMOS sensors for medical applications

**TESLA**

**NoRDHia**

Microstrip CVD diamond detectors for beam profile monitoring (in collaboration with GSI (Eleni Berdermann) since year 2000)



# Available facilities

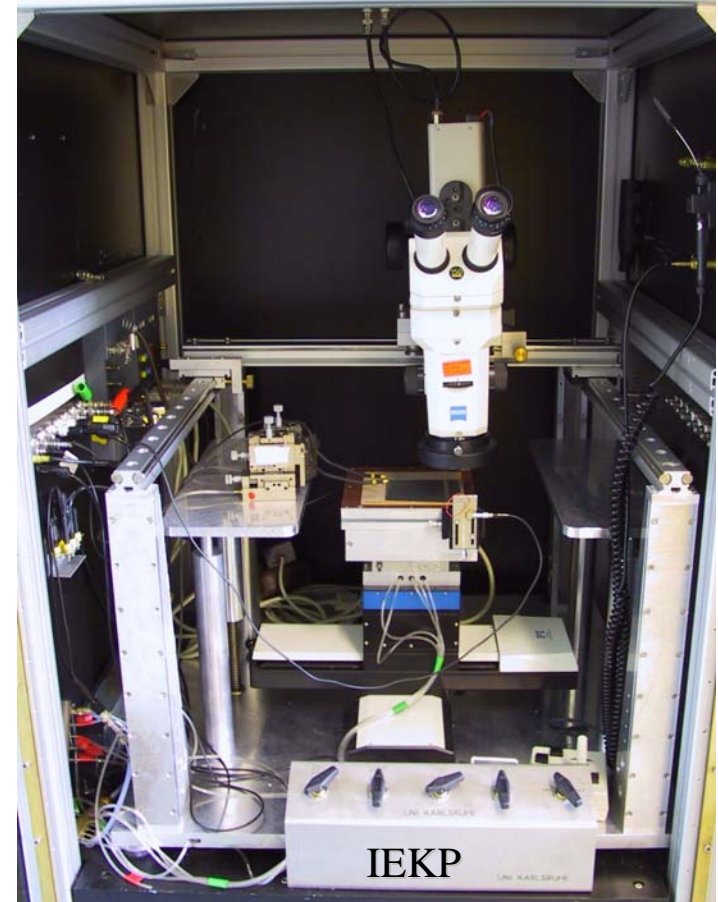
- Automatic probe station with cooling
- Manual and automatic bonding machines
- TCT setup with (2 GHz electronics, cryostat, 35psec red and IR laser → UV head needed for diamond)
- Mechanical & electronic workshops
- Proton irradiation facility (up to  $10^{13}$  p/cm<sup>2</sup>sec)



# Automatic probe station

## Tests of CMS sensors:

- Optical Inspection
  - Cut edges
  - Surface
  - Dimensions
- Electrical Tests
  - IV- and CV-Curve
  - Bias resistance
  - Coupling capacitance
  - Strip leakage current
  - Pinholes





# Irradiation Qualification

## Compact cyclotron at Forschungszentrum Karlsruhe

- 30 MeV protons
- typically 1000 nA
- $T < -10^{\circ}\text{C}$
- Area:  $20 \times 40 \text{cm}^2$

