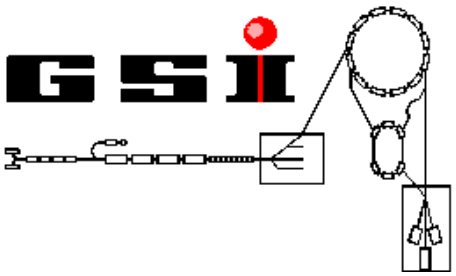
Detector-Technology and -Systems Platform



Helmholtz Institut Mainz

Helmholtz Institut Jena

Christian J. Schmidt
GSI

Karlsruhe, 20.02.2012

Exemplary Detector Systems, Session Summary

Development goals until July 2013

- Fast X-ray and photon detectors, **DESY, FZJ, GSI, HZB, HZDR**, HIM
- Diamond detectors, **DESY, GSI, HIJ, KIT**
- Detectors for thermal neutrons, **FZJ, HZB, HZG**
- Compact gaseous detectors, **DESY, GSI, HZDR,** FZJ, HZB

Fast X-Ray and Photon Detectors

Current Milestones:

- 2012 first prototype sensor of SiPM with pixel readout.
- Prototype Sensor with fine-granular Pixels-Structure and Test of pixel readout (end 2014)

- GSI may contribute with APD/SiPM Characterization facility
- Evaluate benefit of timing analysis using diamond/RPC TOF electronics

Diamond Detectors

Current Milestones

- Construction and test of double sided strip diamond detector system (End of 2012)
  - Towards this end at GSI: Setup of Laser Lithography System
- Large Area DOI-Diamond Sensor, end of 2013

Detectors for Thermal Neutrons

Current milestones

- Construction and tests of a 6LiF-nm-Poder-filled szintillator (End of 2013)
- Characterization of a neutron-detector prototype (End of 2013)

Compact Gaseous Detectors

Current Milestones

- Pre-Study: GEM-structures from alternative materials, technological options (End of 2012)
- Integrated GEM-Amplification and Readout Module (Q2 2014)

Work Items that would also serve first column

- Pixel-SiPM sensor for HGF-Cube
- Pixel-Diamond Detector for HGF-Cube
- Elaborate electrode structuring through µm-Laser Lithography (GSI)
- Elaborate laser induced bonding of Diamond on ASIC Electronics