Kick-Off Meeting „Detector Technology and Systems Platform“

Helmholtz-Zentrum Geesthacht: Introduction to Activities

Prof. Dr. Martin Müller, Institute of Materials Research

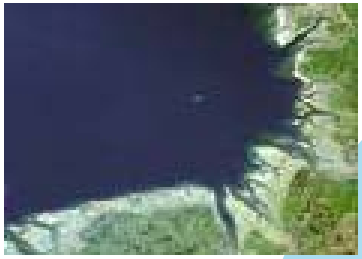
21. & 22.02.12 / Karlsruhe

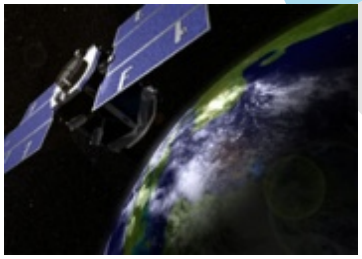
Helmholtz-Zentrum Geesthacht
Centre for Materials and Coastal Research

HZG – Portfolio

Helmholtz-Zentrum Geesthacht
Centre for Materials and Coastal Research

1/3
Coastal and Climate Research

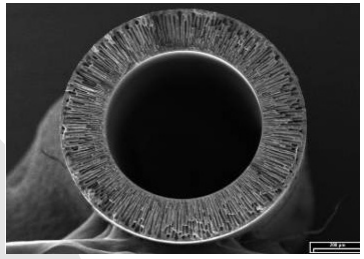


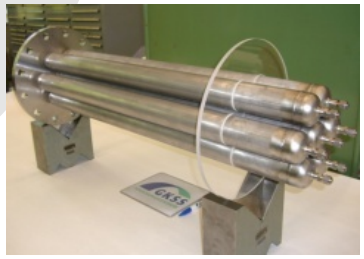


Total budget
95 Mio €

Employees
850

2/3
Materials Research





Synchrotron radiation and neutrons for materials science research

Outstation at FRM II

Outstation at DESY

HEMS, IBL, BioSAXS & Nanofocus at PETRA III

HARWI II at DORIS III

Engineering Materials Science Centre

Detector expertise

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→ **2D neutron detectors**; spin-off company DENEX (2001)

→ **FPGA** development

→ characterisation and **optimisation of detectors** for materials science research (scattering and imaging)

→ **real-time** data acquisition control and data analysis

X-ray tomographic reconstruction of laser beam weld

Detector platform projects

Helmholtz-Zentrum Geesthacht
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Intelligent programmable hardware (Jörg Burmester)

→ realisation of new hardware closely linked to **application**

→ test of hardware components **with synchrotron radiation and neutrons**

Fast data processing with highly parallel architectures

(Dr. Felix Beckmann)

→ data **pre-processing and reduction** at detector

→ definition of novel hardware for data processing and reconstruction

→ asynchronous data processing, highly parallelised algorithms

Detector platform projects

Helmholtz-Zentrum Geesthacht
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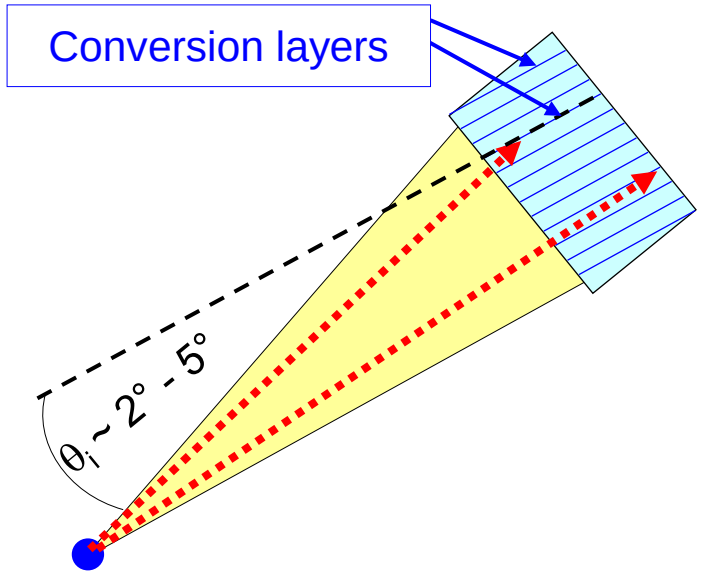
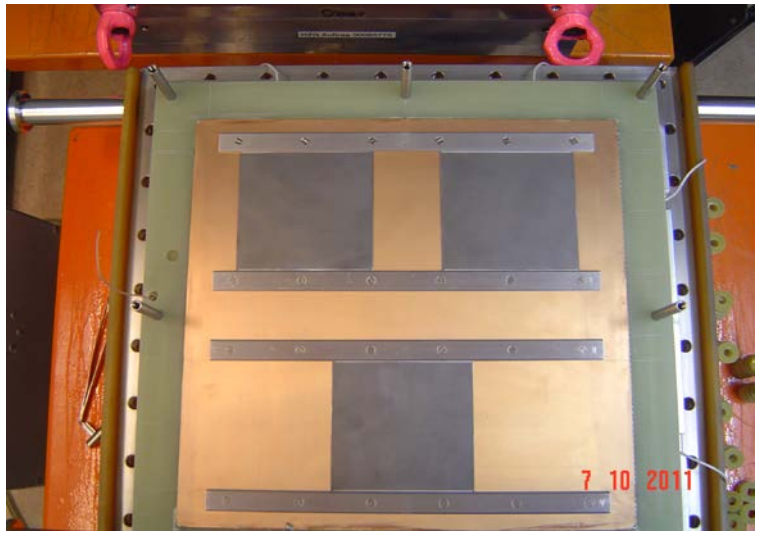
Detectors for thermal neutrons (Reinhard Kampmann)

→ high data rate read-out for ^{3}He-free **^{10}B detector in inclined geometry**

→ adaptation to high-energy X-rays with high-Z converter



B_4C samples mounted in detector



Detector platform projects

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Planned use of new ressources for HZG:

→ PhD student (Pavel Lytaev) from mid-2012

→ engineer (Christian Jacobsen) from mid-2013

Projects will profit from **synergies**

→ **within the platform;**

→ between technical services and scientists at HZG.