

JRA1 – JRA2 Interface

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4 January 2006



JRA 1 Status

- Brainstorming 3/4 Nov. @ DESY
 - Coarse outline of the project
 - First WBS
 - Results documented:
 - <http://www-zeus.desy.de/~haas/eudet-jra1/>
- DAQ workshop 14/15 Dec. @ CERN
 - Detailed WBS with milestones and deliverables up to middle 2007



Organizational Progress

- JRA1 Tasks and leaders:

- Magnet → Katsumasa Ikematsu (DESY)
- Telescope Sensors → Wojciech Dulinski (Strasbourg)
- Telescope Integration → Ingrid Gregor (DESY)
- DAQ → Daniel Haas (Genève)
- Validation → David Cussans (Bristol)

- Next Dates:

- Meeting: 3 February (1 week before EUDET Kickoff)
- MAPS Tutorial: 14 – 17 March, Strasbourg
- Review 1: 4 April, CERN
- Review 2: January 2007
- Review 3: July 2007



Brainstorming Results 1

- Telescope layout and configuration:
 - A transverse size of ca 2 cm will be provided at least in one direction. The second direction can be smaller.
 - The longitudinal layout will be configurable and should provide at least two configurations: a very compact one (ca. 20cm) and a two-arm one with space for a larger DUT in the middle. The mounting will be such that at least one plane can be brought very close to the DUT in the compact configuration
 - Precision positioning for a pixel DUT will be built
- Telescope chip
 - A CMOS Maps will be used for the telescope.
 - The telescope chip will have a discriminator and ADC on board
 - Frame R/O time will be of the order of 1 ms



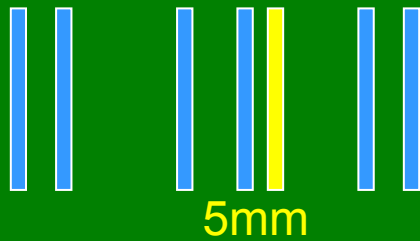
Brainstorming Results 2

- Cooling
 - The temperature of the DUT must be able to be kept constant. What temperatures are needed is still open
- DAQ
 - Telescope and DUT DAQ will be kept separate. The interface is via trigger, busy and event number. (TLU provided)
 - The telescope F/E will do digitization and sparsification for the demonstrator.
 - R/O should be over a standard interface such as USB-2
- Demonstrator (available middle 2007)
 - The demonstrator should be a fully usable system
 - It will use the MIMO* 3 chip with the MIMOSA 5 as a fall back solution

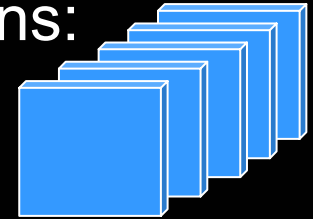


Planned layout

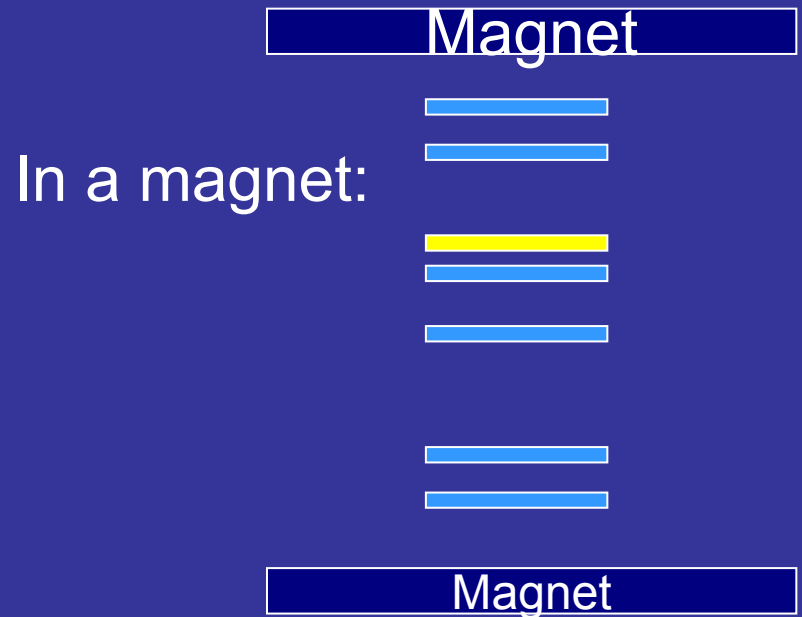
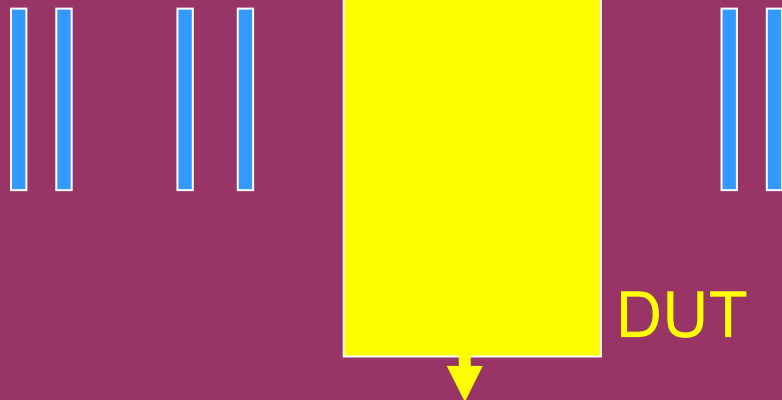
Compact:
for pixels



6 Telescope planes usable in
different configurations:



Two-arm:
TPC etc...



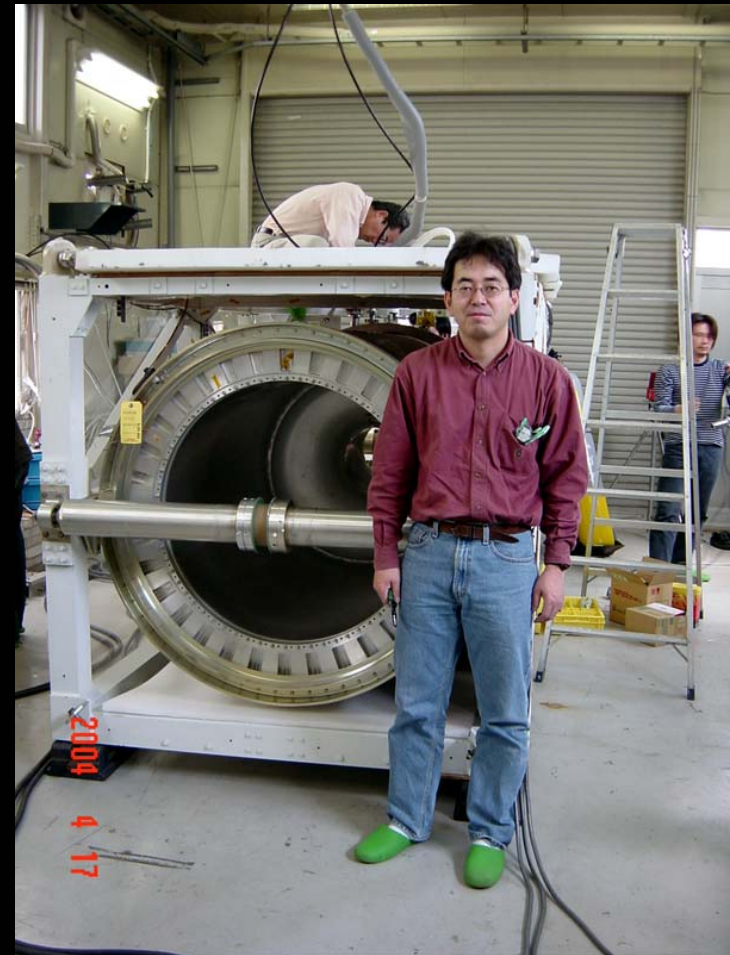
What should Demonstrator demonstrate?

- Show the principle:
 - Sensors
 - Demonstrate the precision
 - Compromise on size and DAQ integration
 - Mechanics/Integration
 - Demonstrate overall setup/flexibility
 - Could be one out of two arms
 - DAQ
 - Fully functional
 - Compromise on the rate ($\sim 10\text{Hz}$)
 - DUT
 - Should be fully functional for Pixel devices
 - Compromise for other users (TPC)

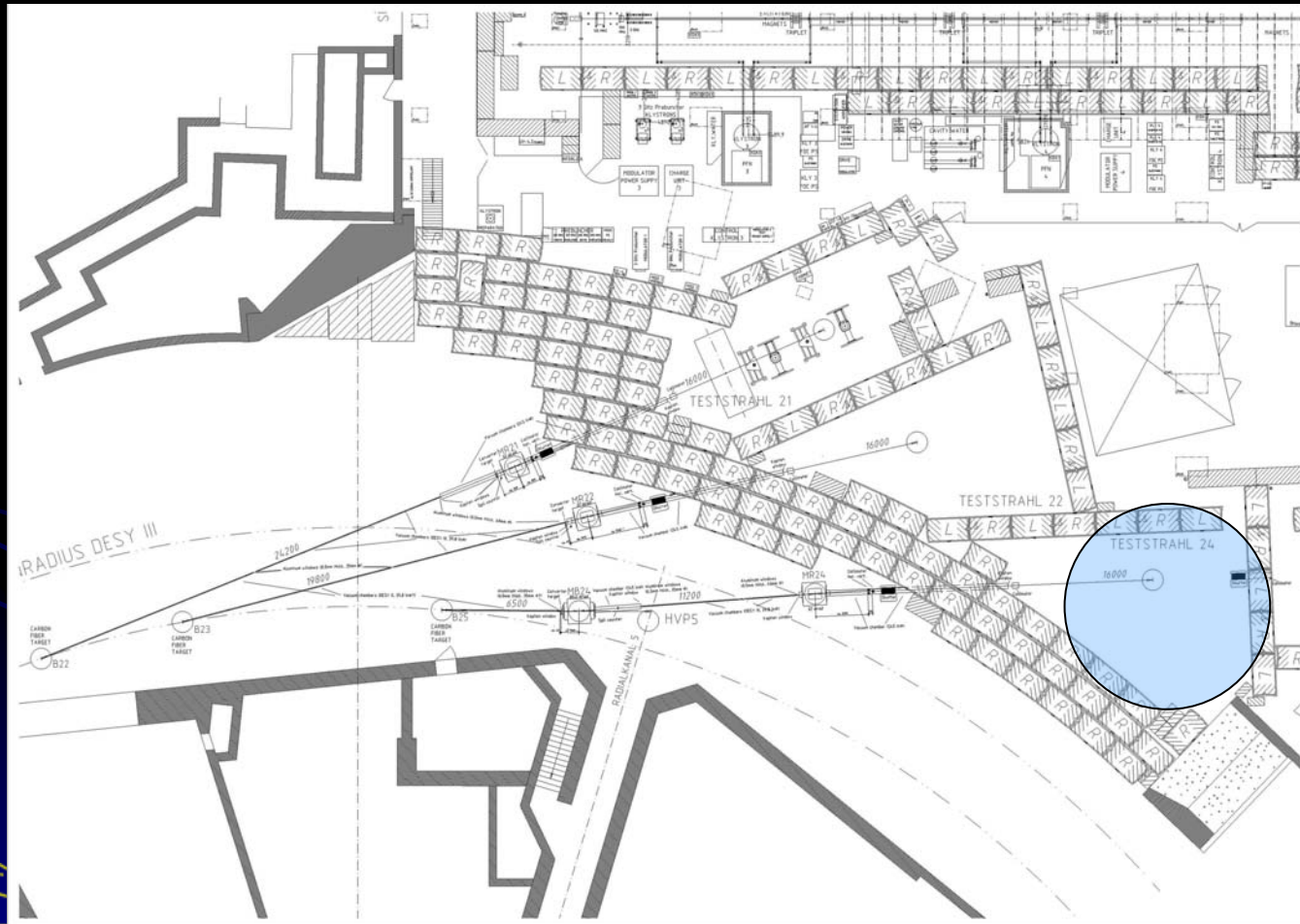


Magnet

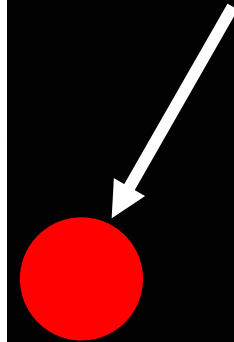
- Superconducting solenoid from KEK:
 - $B \leq 1.2$ T
 - 85 cm bore
 - 246 cm long
- To be operational @ DESY by end 2006
- Limitations:
 - Stray field \rightarrow interlock
 - He cost \rightarrow length of operation



DESY Test beam area

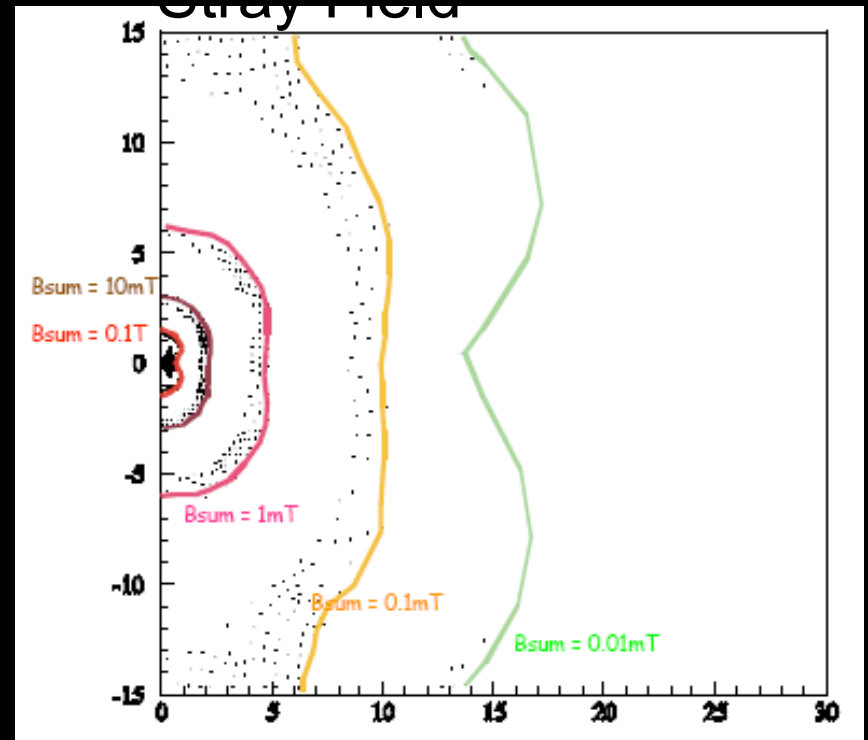


Testbeam 24



Magnet @ DESY

- Place magnet in one of the two EAs in beam 24
 - Slight preference for B
- Area A available for parallel non-B expt.
- Cryo and controls outside EA which is interlocked



Open Questions

- What do you expect of us?
 - How much lateral movement?
 - Beam or DUT?
 - Do you need the telescope?
 - In front, behind or both?
 - What information from the telescope?
 - Move magnet to other beams?
- Information exchange
 - Contact person on either side?

