

Project Review



MPI für Physik
München

17.–18. December 2012

Mechanical Department



Created by:
Thomas Haubold
haubold@mpp.mpg.de

Presented by:
Ch. Jablonski



Overview

- *Employees*
- *Project reports*
- *new machines, new technologies*
- *some statistics*



Staff

19 technicians working in two mechanical workshops, the fitter's shop, the carpentry and the storage

9 engineers and a draftswoman working in the office of mechanical design

6 apprentices do their job training in the mechanical workshop



Project Reports

The mechanical department is involved in the following experiments:

- *MAGIC, CTA*
- *GERDA, GeDet*
- *ATLAS; MDT II, HEC II*
- *BELLE II*
- *Future Accelerators, PWA (Plasma Wakefield Accelerator)*





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MAGIC

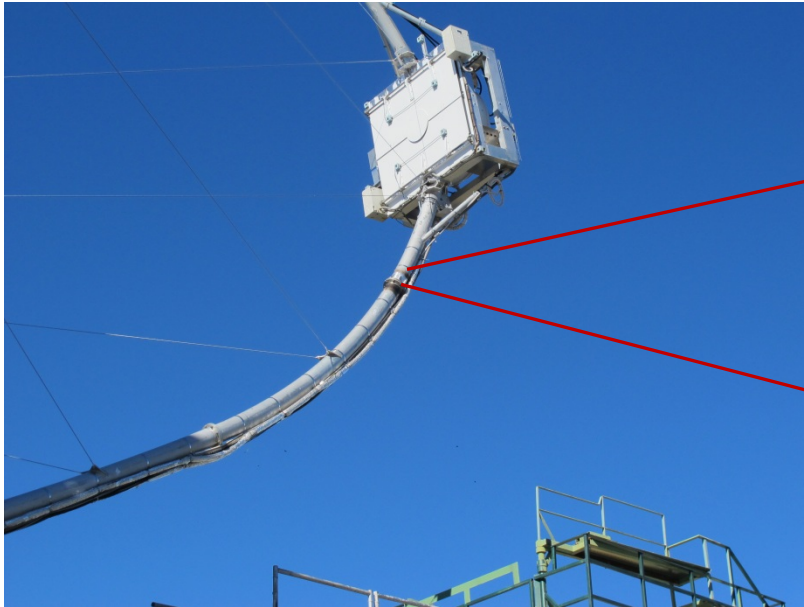


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MAGIC I Camera Mast

Magic I: A damaged joint of the camera mast was welded by two of our technicians in situ.



Testing MAGIC I Upgrade

The MAGIC I Upgrade Camera was tested in a “black box” at the Institute.



Installation MAGIC I Upgrade

New camera for MAGIC I

Installation mid of 2012.

- *10 technicians from the mechanics and electronics workshop were on La Palma*
- *the old camera was removed*
- *the new camera successfully installed and tested*
- *additional counterweight was mounted on the backside of the dish*





Installation MAGIC I Upgrade

*Removing
old camera*

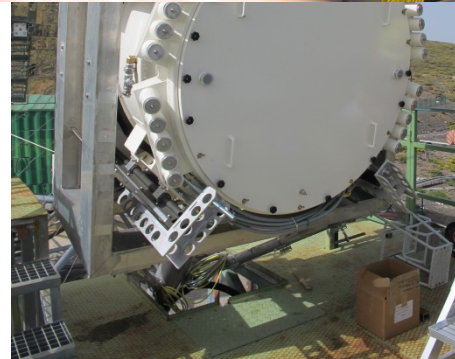
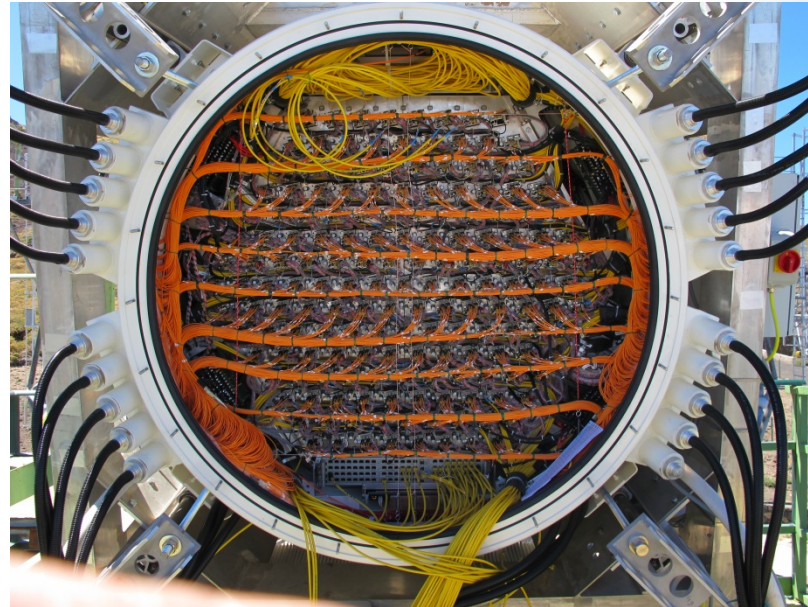


Installation MAGIC I Upgrade



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Installing the new Camera:



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Installation MAGIC I Upgrade

Installation of counter weight and camera support mast.



old version

new version



MAGIC I

MAGIC II





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CTA

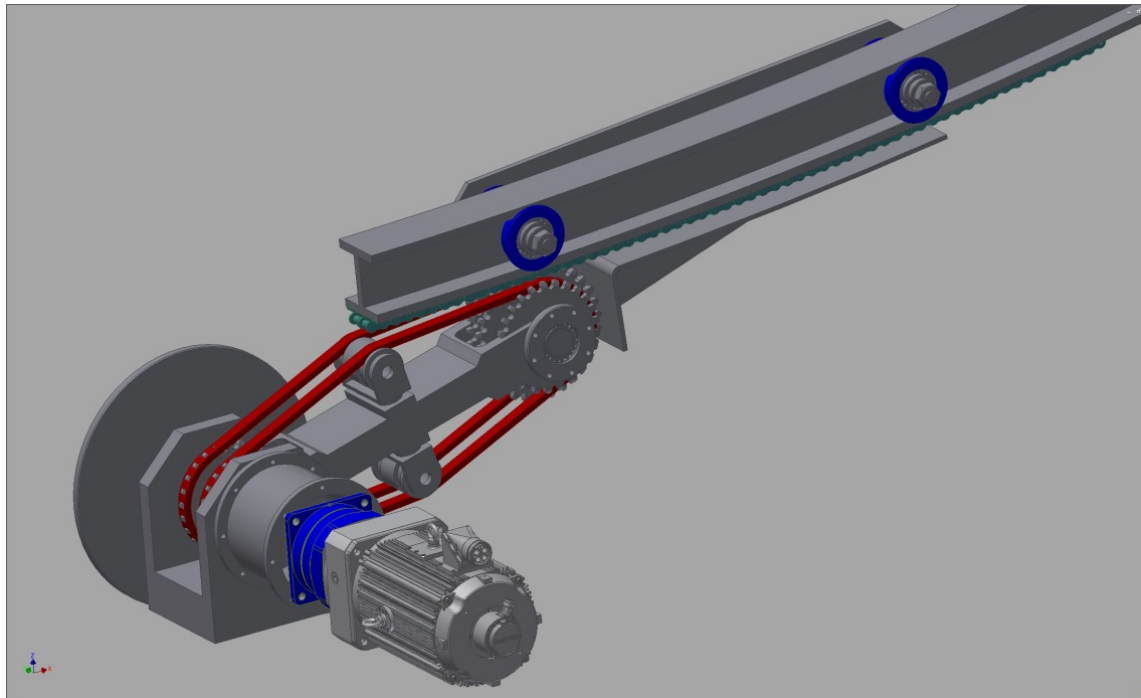


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Designstudies CTA

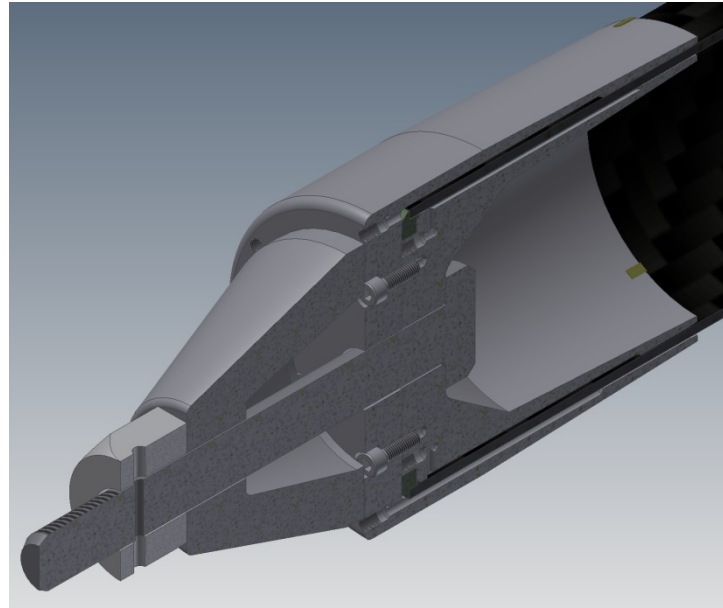
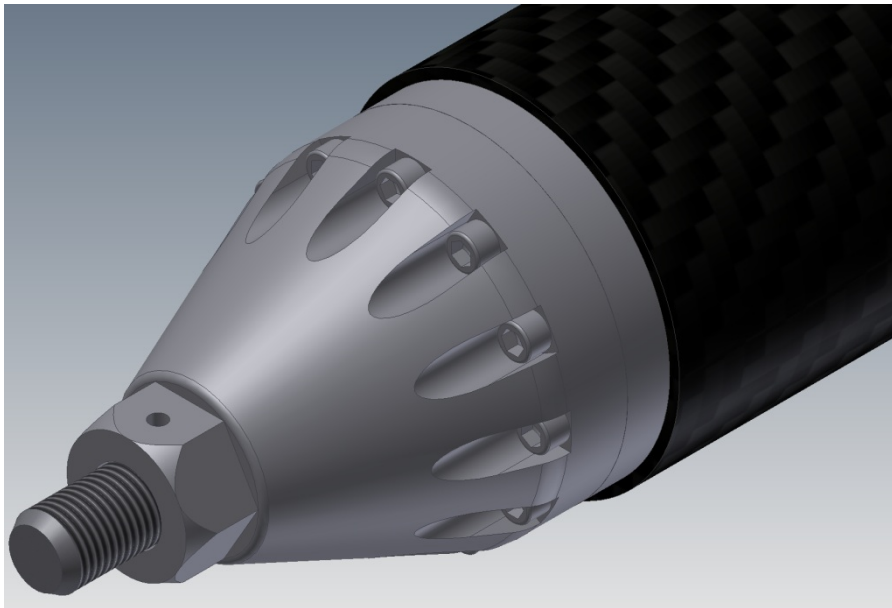
*The Project CTA is in the design phase.
3 Engineers are working on the project.*



Draft of elevationdrive

Designstudies CTA

- Carbon fiber tubes (170 mm diameter) for the sub-structure of CTA
- Light weight tubes transferring 320 kN (32 t) to 1.200kN (120 t)





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GERDA



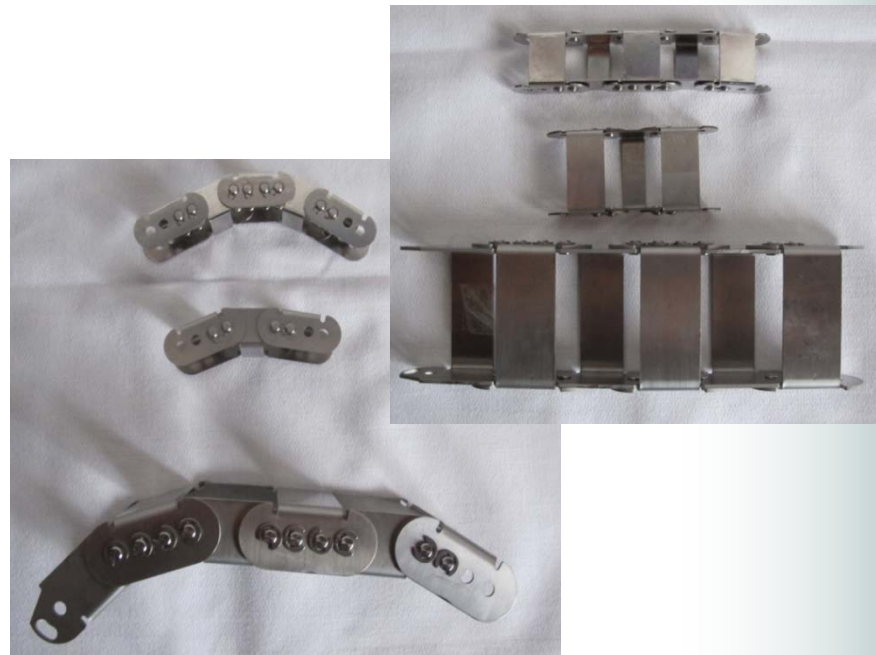
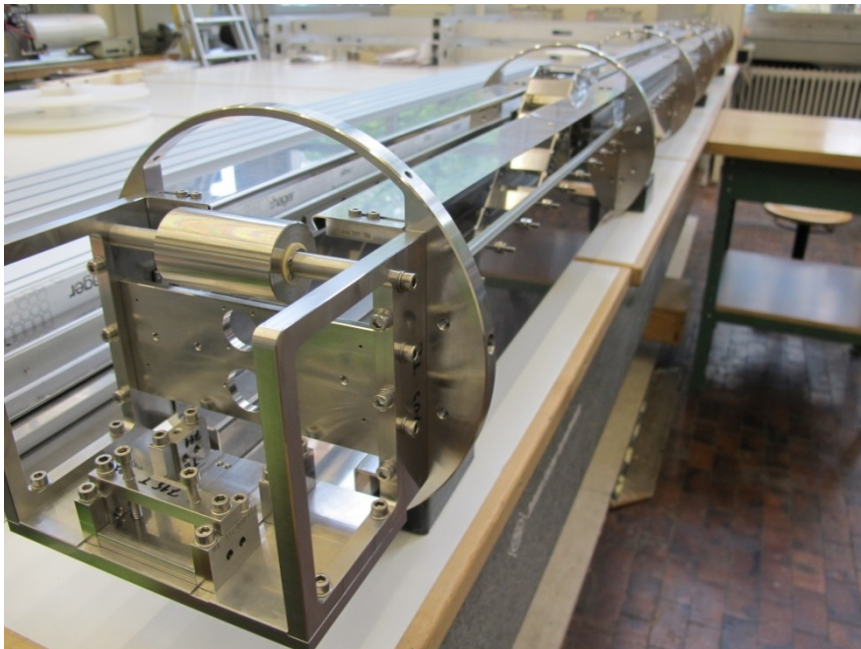
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GERDA lock phase II

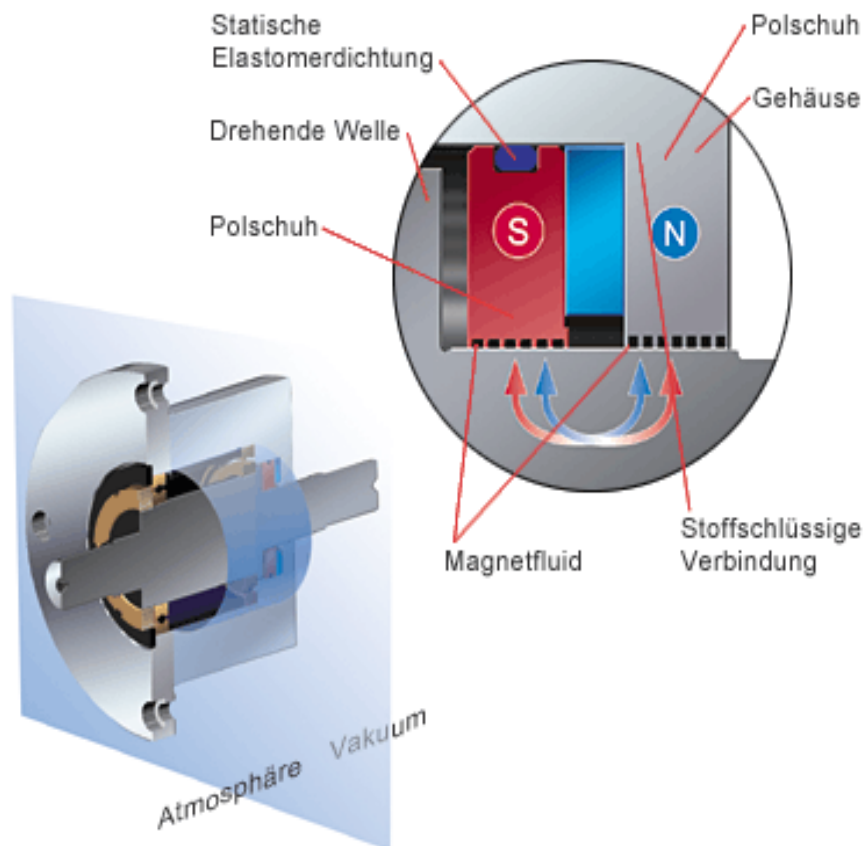
Redesigns of the GERDA lock, phase II:

- *Tube diameter changed from 150mm to 250mm*
- *The chain width was changed from 30mm to 100mm*
- *additional mechanics were changed*



GERDA lock phase II

*For the redesign we use a special technology
- a Ferrofluid sealed rotary*



Redesign GERDA lock phase II

Acceptance procedure by TÜV Hessen, in beginning of December.

He-leakagetest





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ATLAS



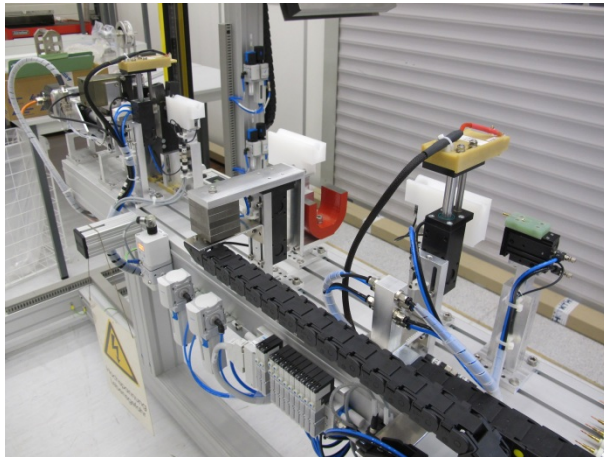
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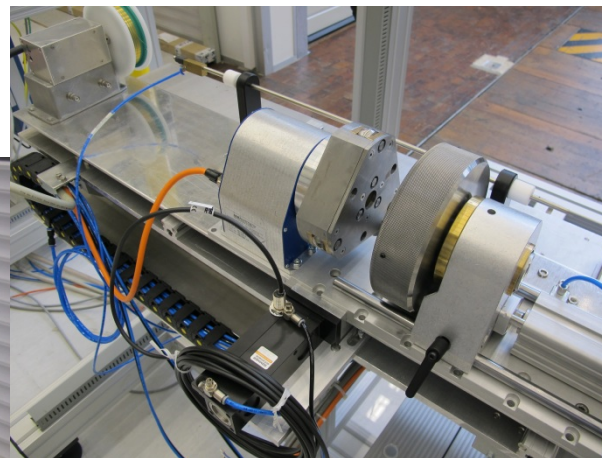
ATLAS MDT II

The infrastructure to produce the new MDT chambers is set up.

- *self made wiring machine*
- *and crimping machine*



wiring



crimping

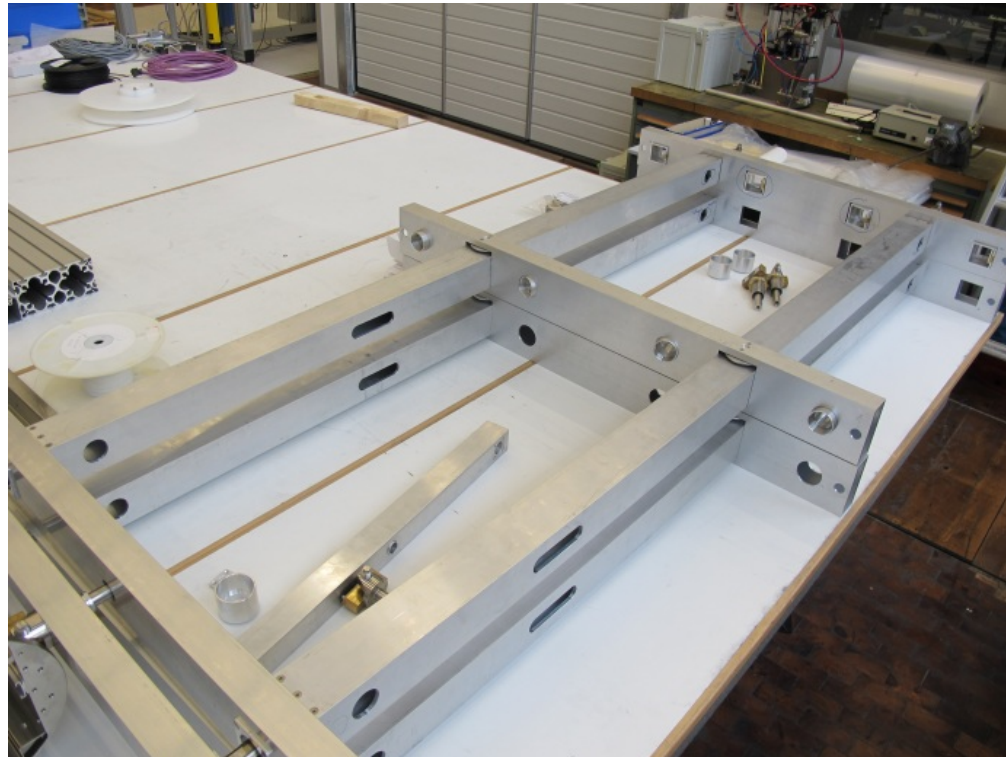


ATLAS MDT II



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*The preassembled Spacer for the
Moun chamber.*



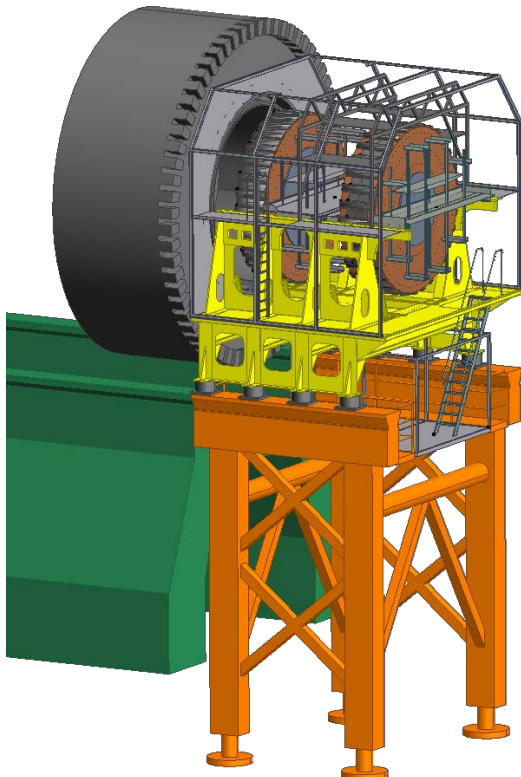
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ATLAS HEC II

Together with electronic's department a scenario was developed to change electronic components at the HEC detector during the next big shut down.

Shape cut into foam to simulate the mounting an handling of electronics.





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BELLE



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Thomas Haubold
haubold@mpp.mpg.de

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BELLE II Designphase

The following slides should demonstrate the capability of our design office to simulate and evaluate mechanical and electronic solutions with the help of our modern CAD system (Computer Aided Design).

Displayed is the initial project phase of BELLE II.



BELLE II Designphase



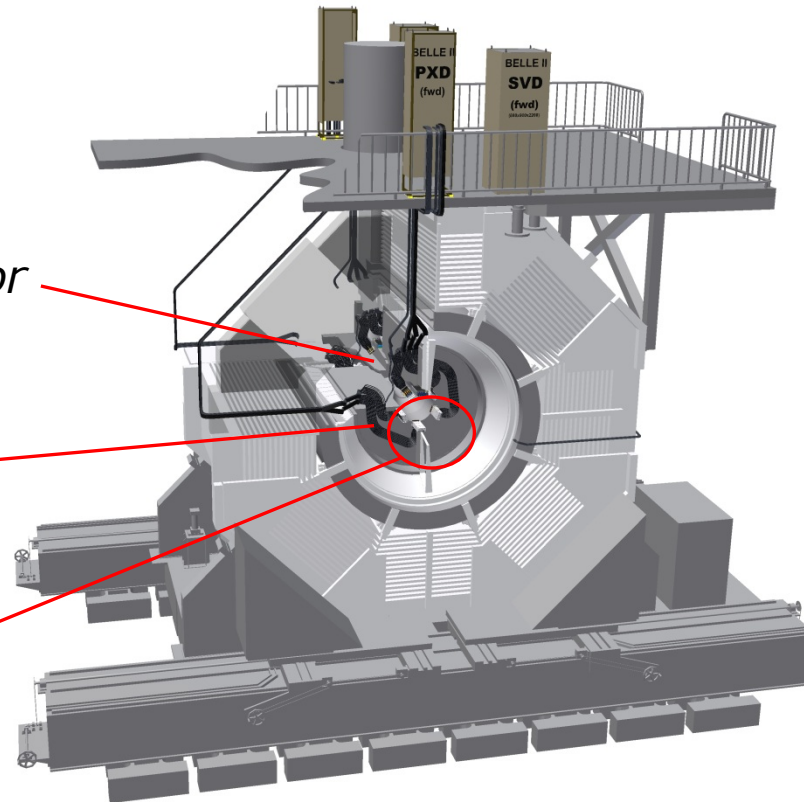
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BELLE detector

inside the pixeldetector

*the black lines
simulate the cable
routing*

the junction box



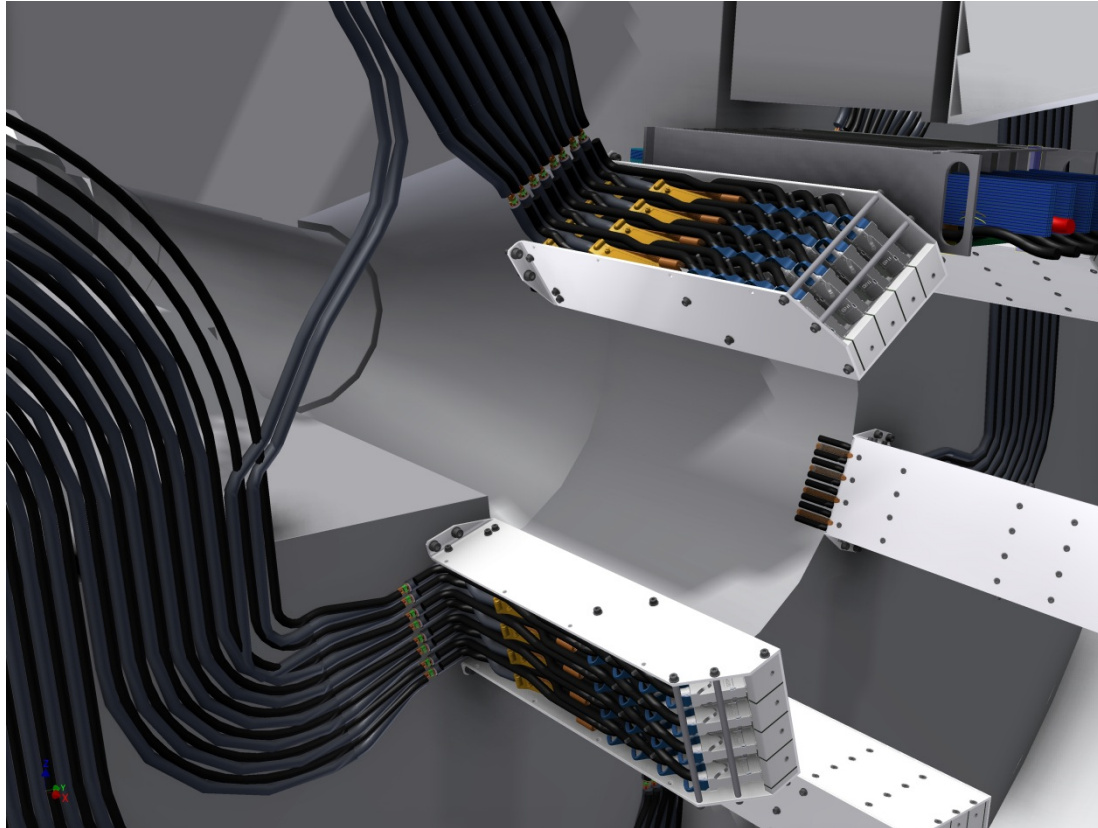
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BELLE II Designphase



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detailed view of junction box

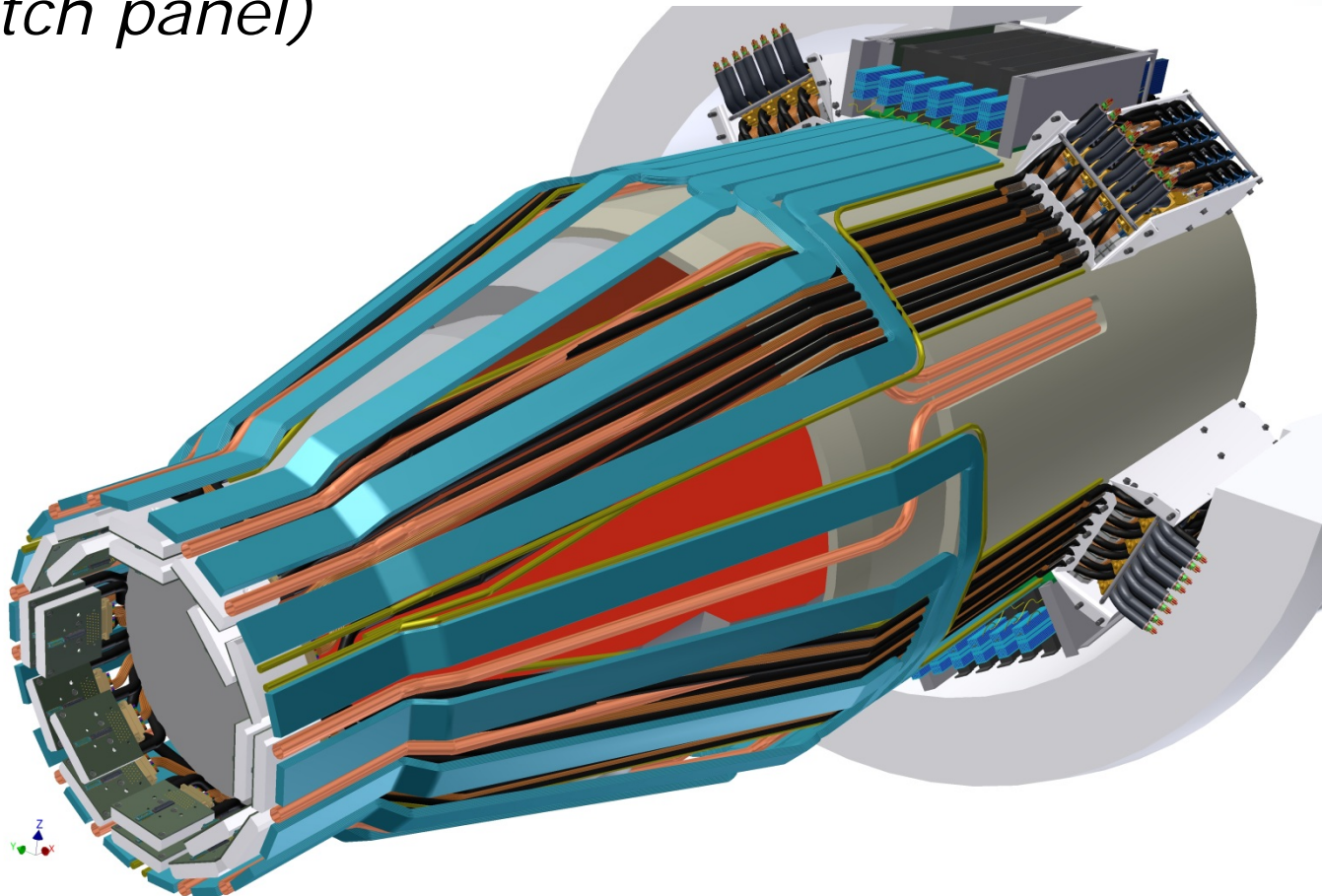


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BELLE II Designphase

*reverse side of the junction box
(patch panel)*





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Plasma Wakefield



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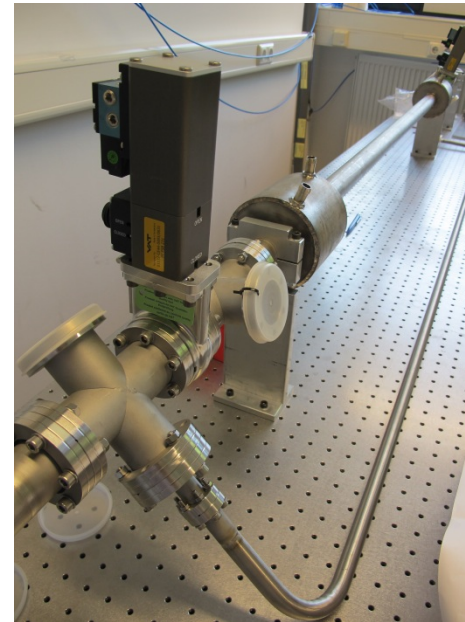
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Plasma Wakefield

The first example of the plasma tube was designed and manufactured at the institute...



and assembled in the laboratory.





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New machines and technologies



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haubold@mpp.mpg.de

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new machines new technologies



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*For GERDA and MDT a complete new cleaning
work bench was installed.*

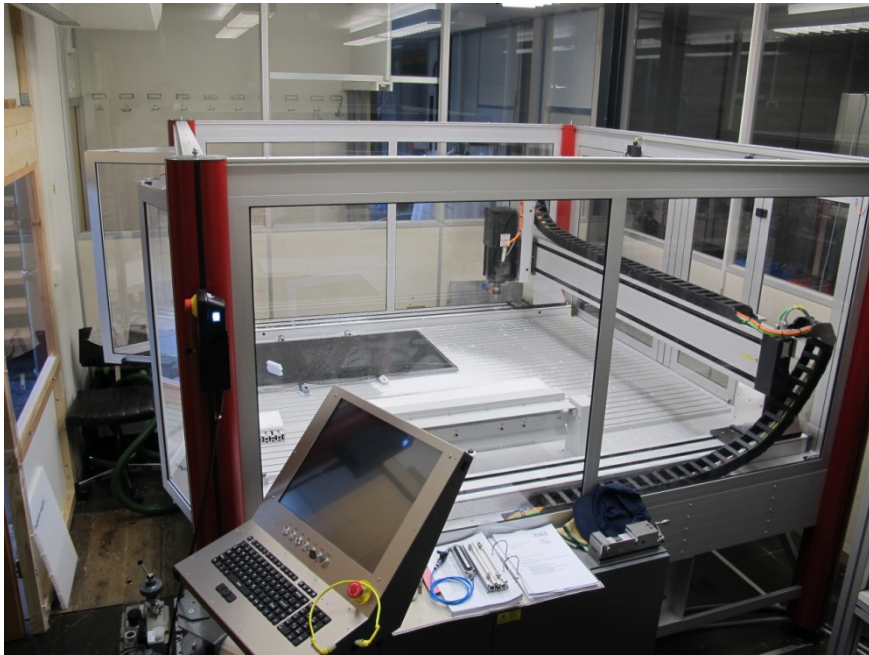


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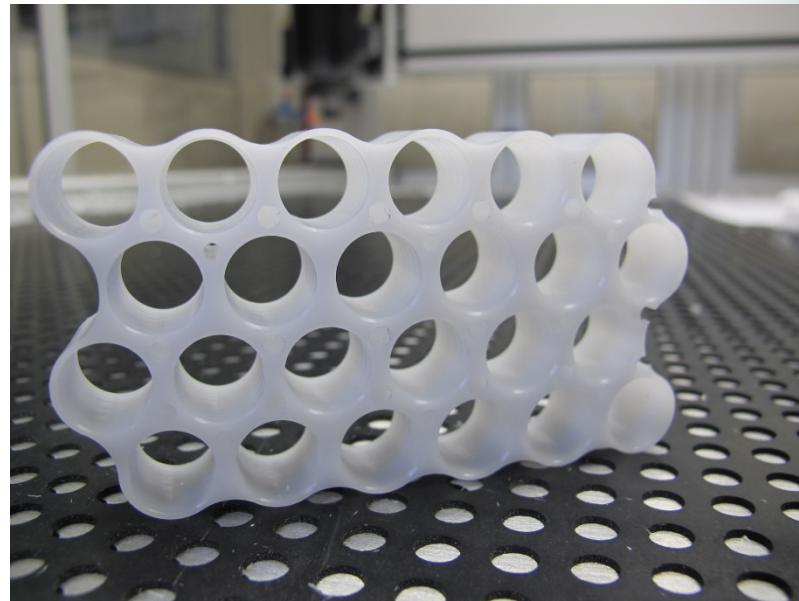
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new machines *new technologies*

A new CNC milling machine for light weight material with a work area of 2 x 2 m² was installed.



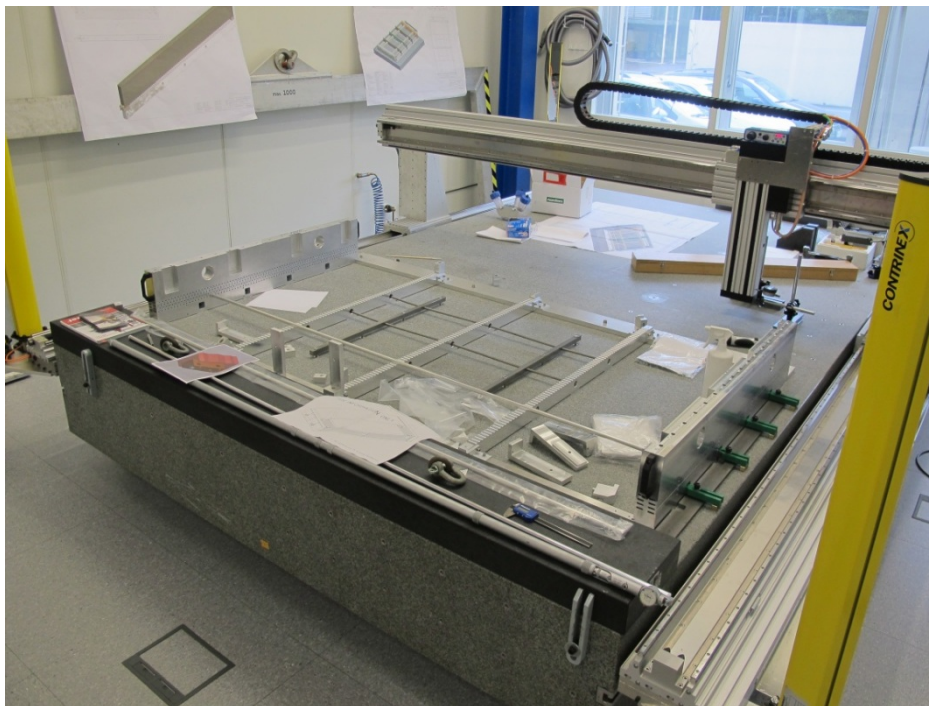
Already 200 plastic parts for a new MDT Chamber were produced.



new machines new technologies

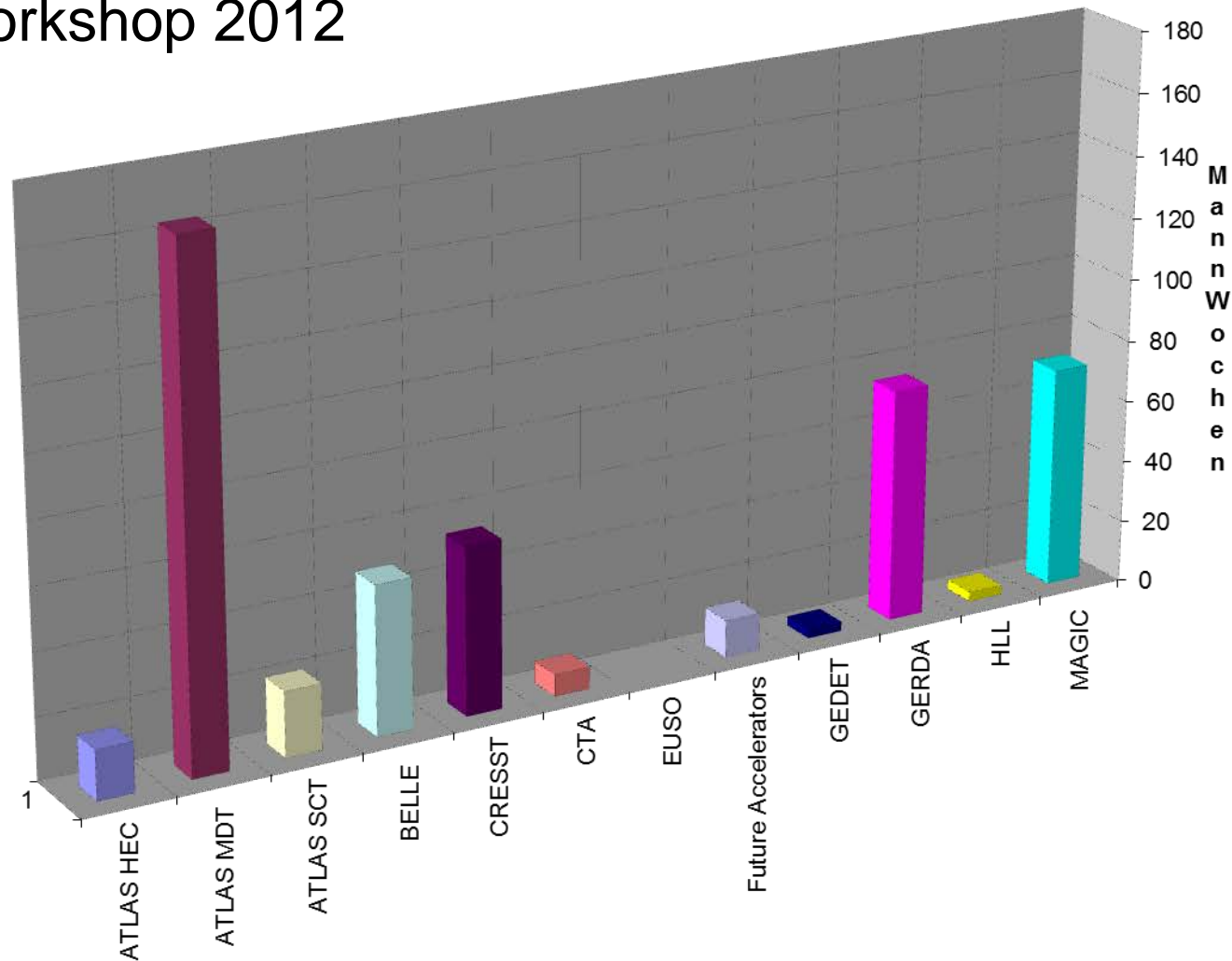
New high speed gluing machine.

- *movement in three directions xyz*
- *very accurate positioning*
- *area of operation 2m x 4m x 35cm*



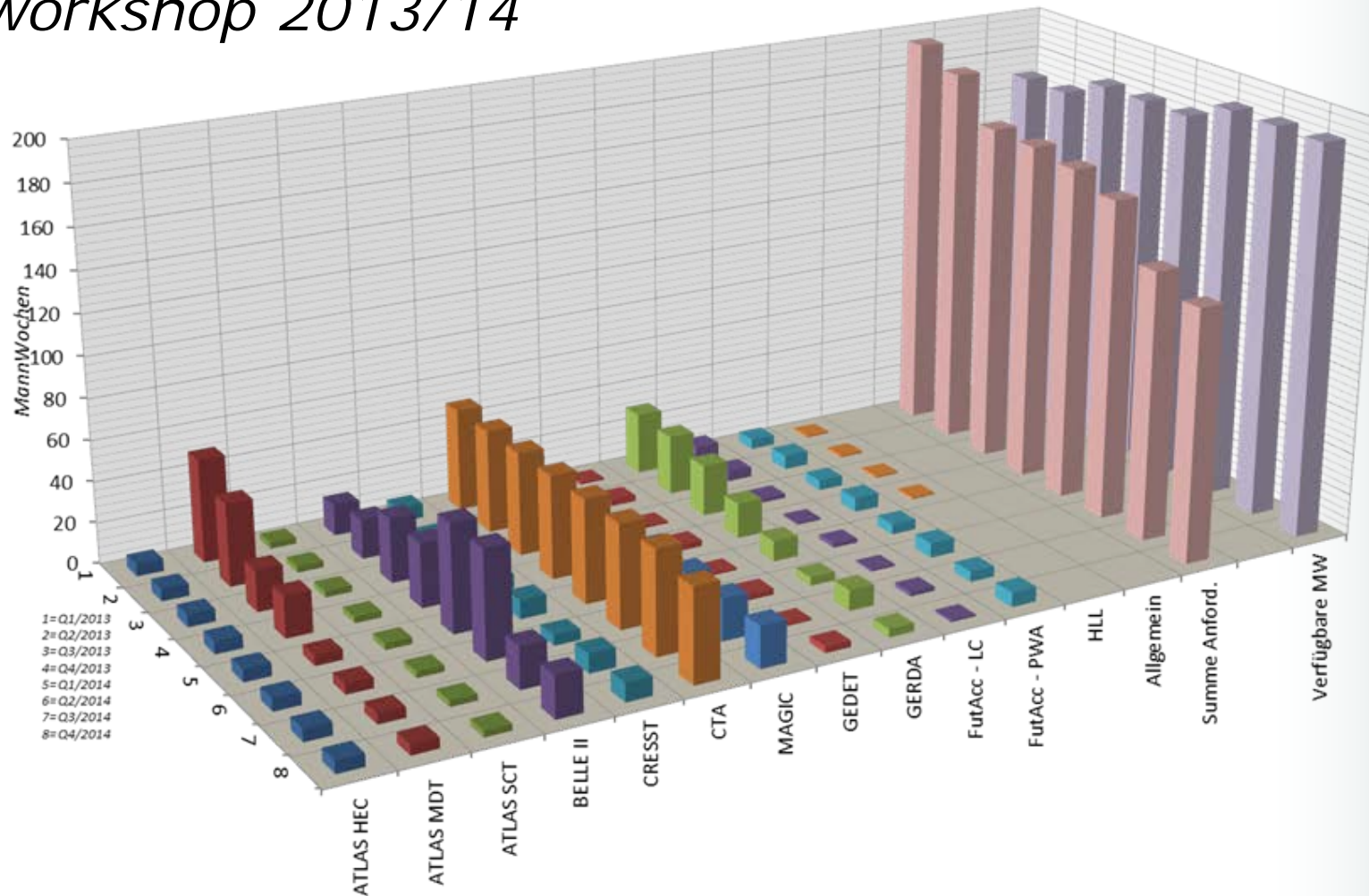
Statistics

Distribution of manpower on the projects Workshop 2012



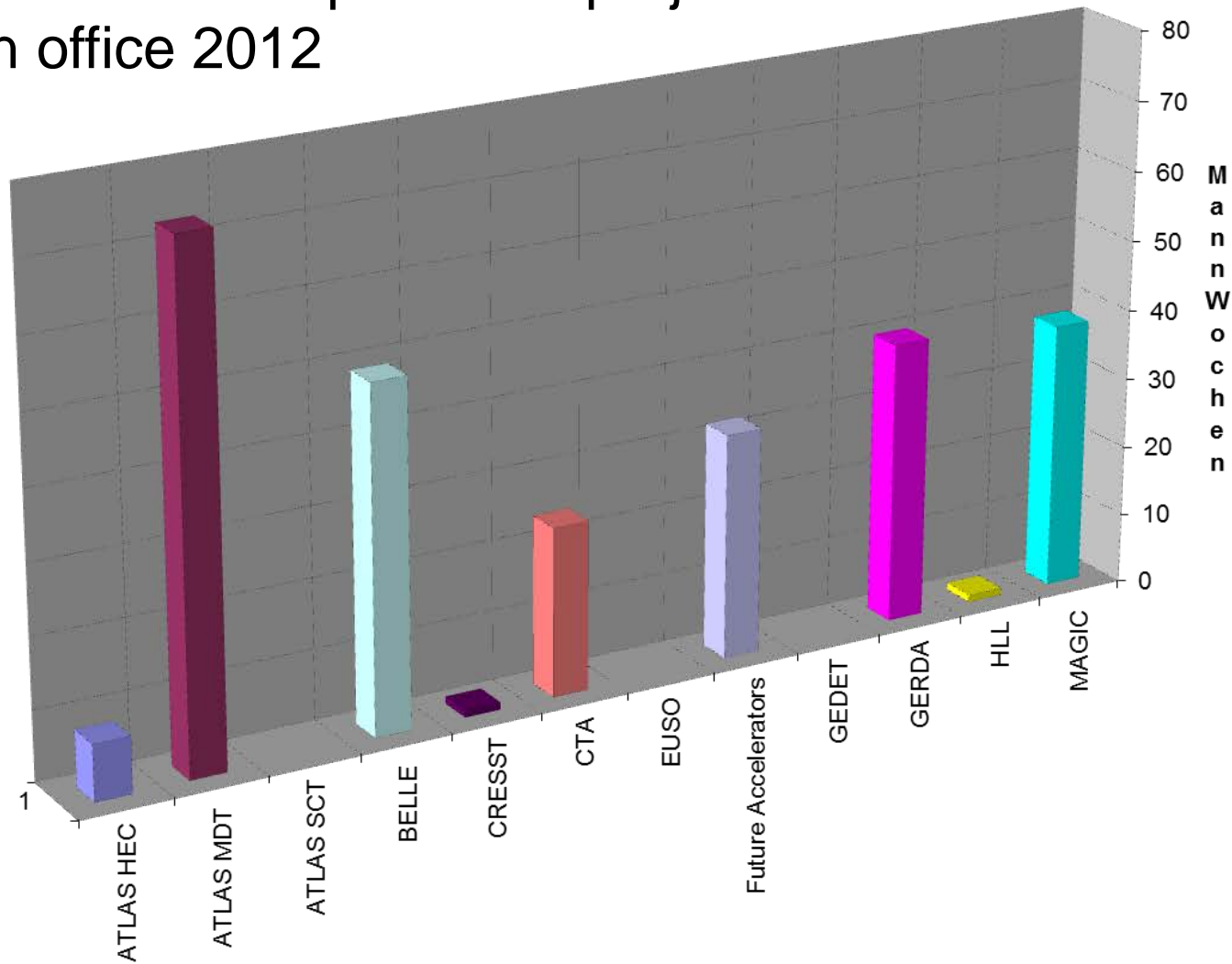
Statistics

*requested manpower
workshop 2013/14*



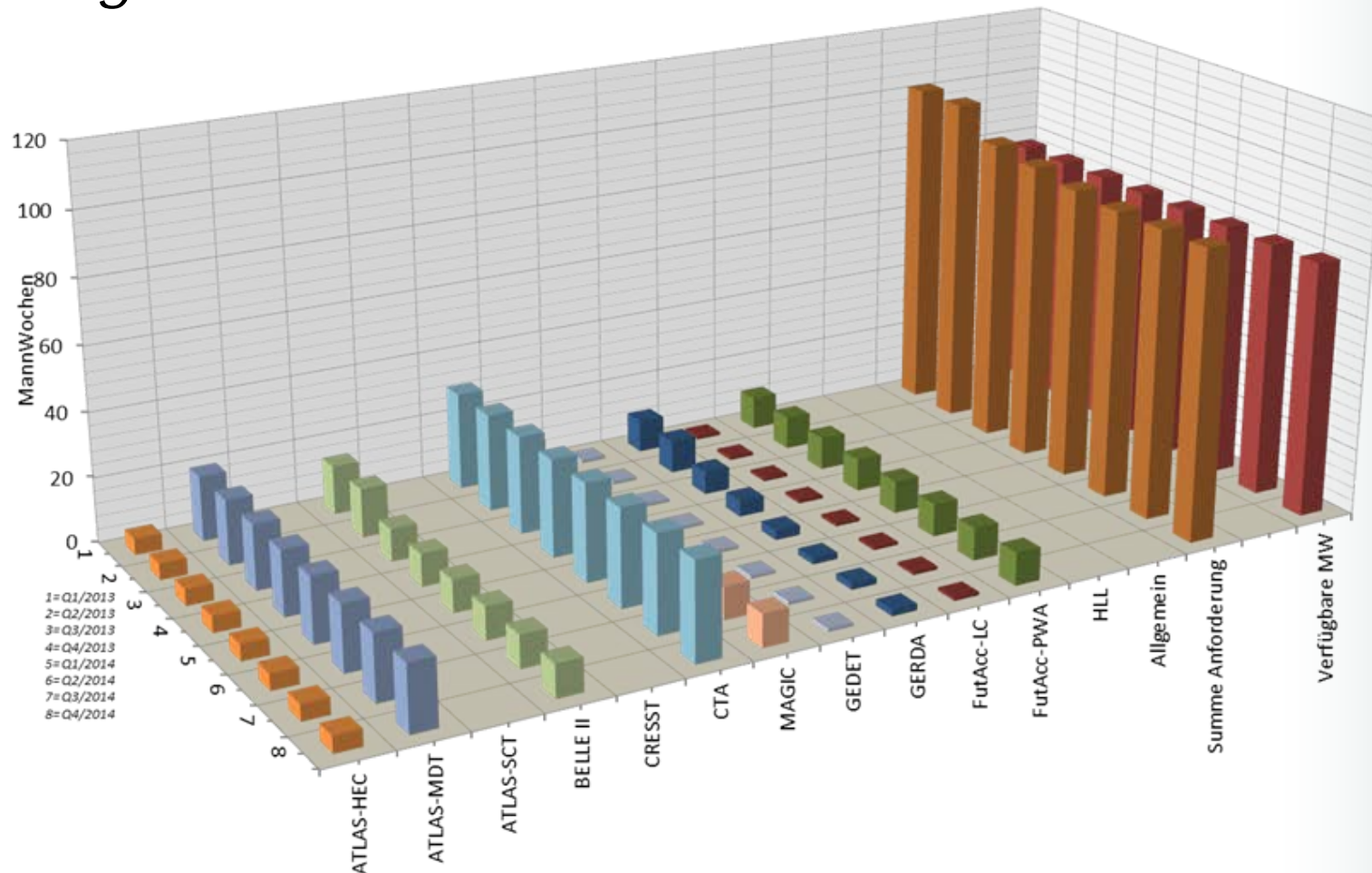
Statistics

distribution of manpower on projects
design office 2012



Some statistics

*requested manpower
design office 2013/14*





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Thank you for your attention



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