



# *Project Review*

*Mechanical Department*  
*19. –20. December 2011*

# Overview



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

# Employees



*19 technicians work at the mechanical workshop, the fitter´s shop, joiner´s workshop and the storage.*

*9 engineers and one draftsman work at the mechanical design office.*

*6 apprentices get their mechanical training in our workshop.*

# Project Report



*The mechanical department is involved in a lot of experiments e.g.*

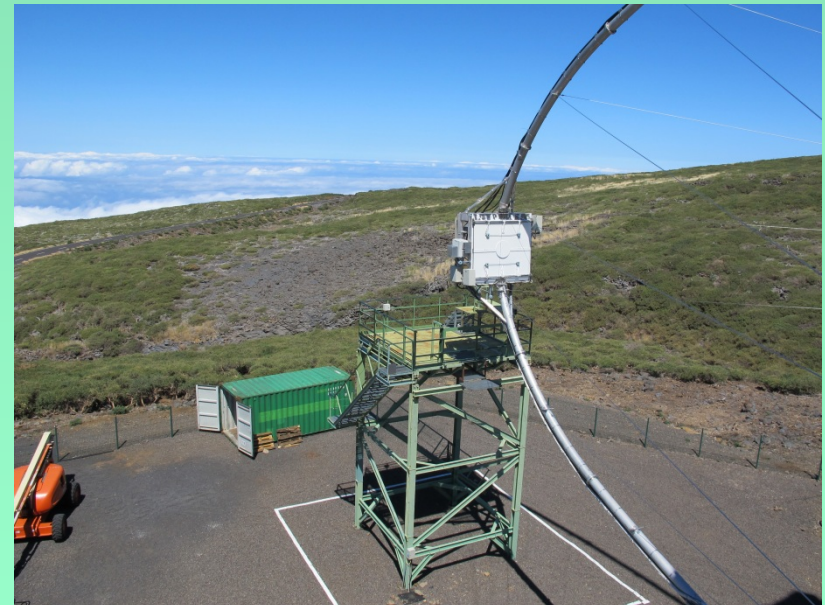
- *MAGIC, CTA*
- *GERDA, GeDet*
- *ATLAS; MDT II, HEC II*
- *BELLE II*

# Project Report MAGIC



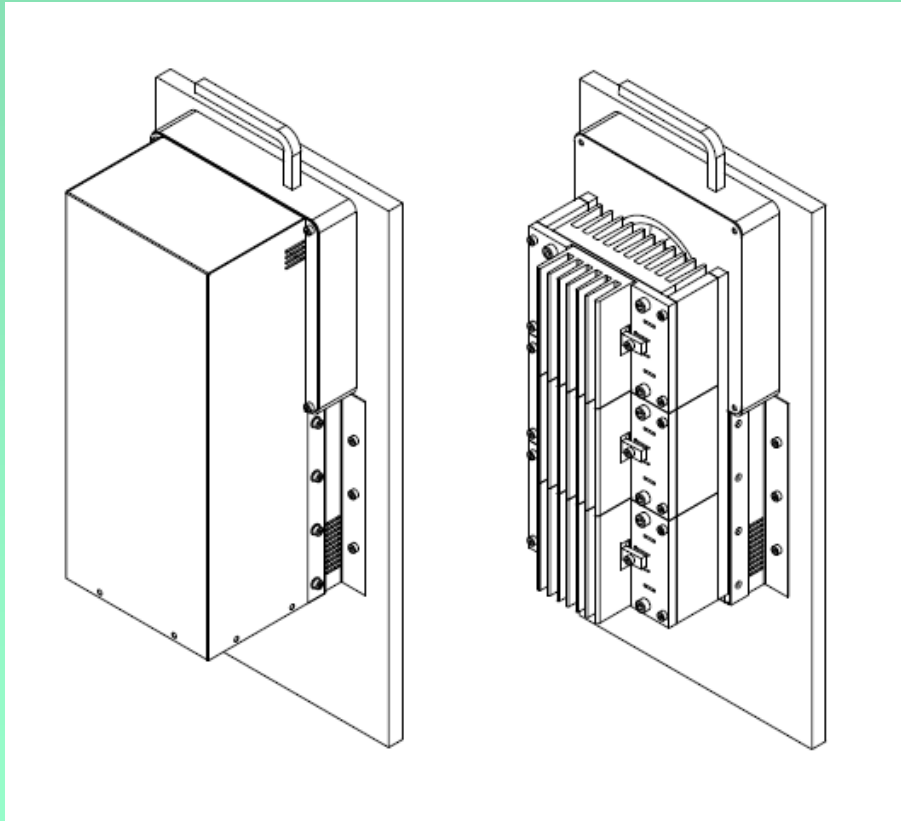
*Shipping the MAGIC I upgrade camera  
beginning of the year*

*Container ready for transport*



*Container in La Palma*

# Project Report MAGIC / CTA



*Design of an dehumidifier  
for the camera*

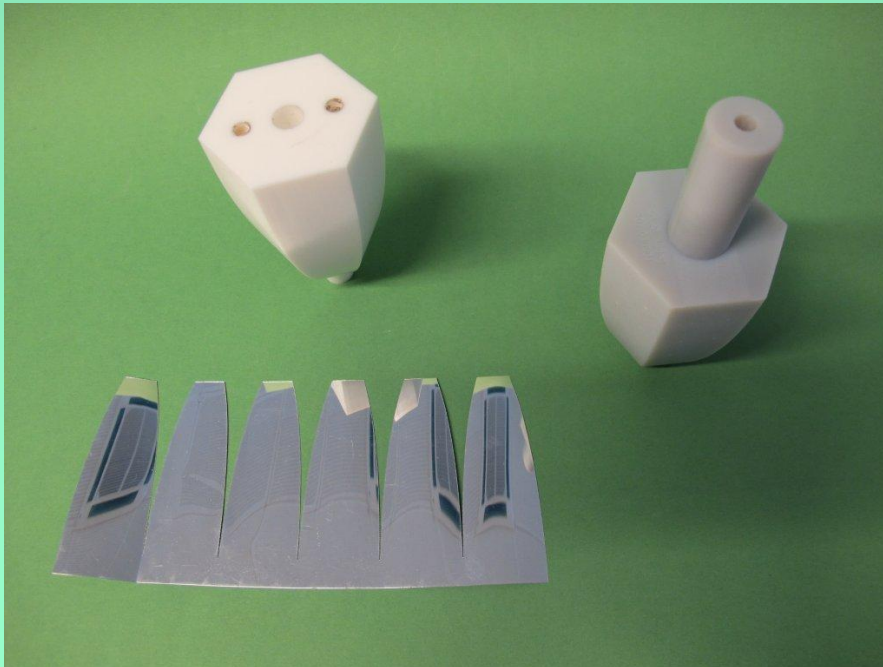
*at the time it`s producing in the  
workshop*

# Project Report

## CTA



### Design studies of the Winston cones



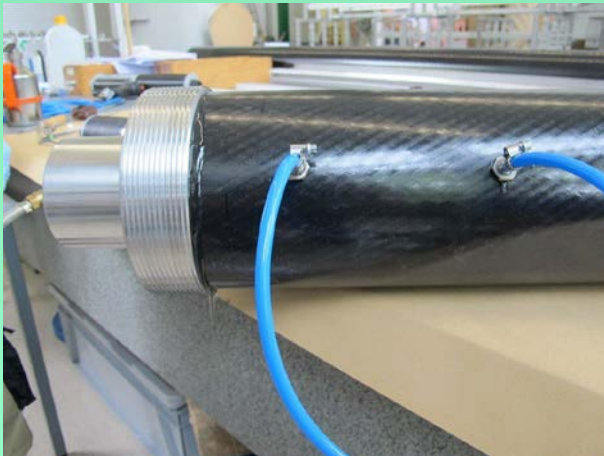
*the cone (made by rapid prototyping)  
fixed the glued foil in right position*



# Project Report CTA



## Gluing and test the carbon fibre tube for the new structure of the CTA telescope



*Adhesive is pressing between tube and flange*

*The tube in testing machine*



*The result -  
Crash at one  
Mega Newton*

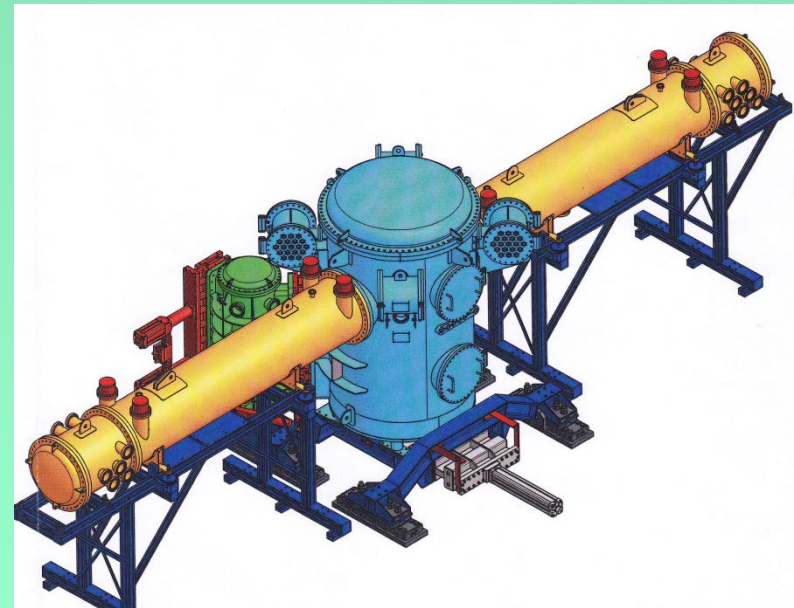
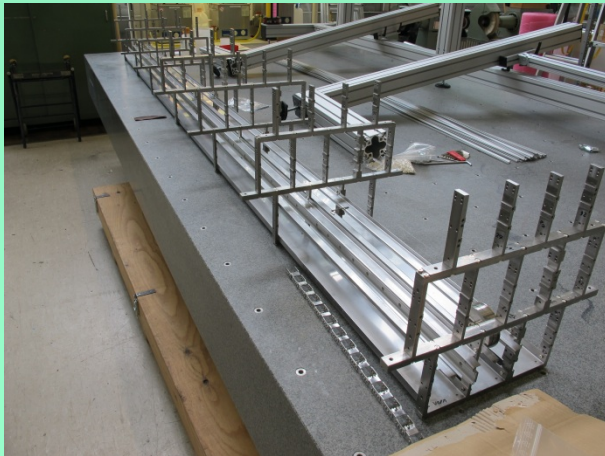


# Project Report GERDA



*The assembly of the GERDA container  
was cancelled*

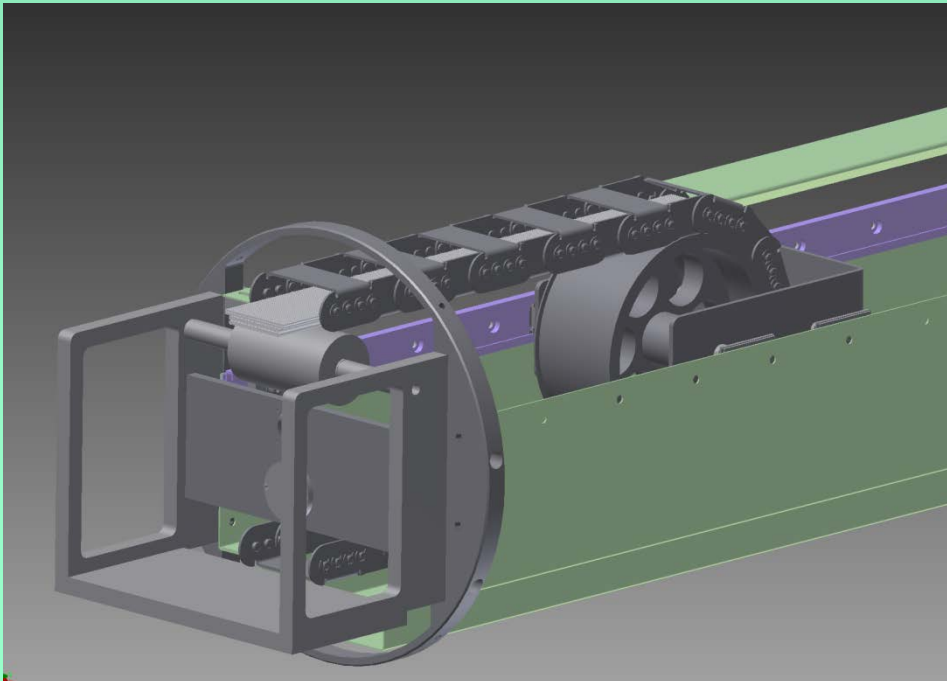
*The first components were  
mounted*



# Project Report GERDA



*For the next step, phase II, the design of the first commissioning lock will be used again.*



*A new cable chain must be developed, because the cable volume is bigger.*

# Project Report

## GeDet



*A special transport container for Ge was developed and assembled by the workshop.*

*Special steel transport box inside of the container*



*About 60 water canister, filled with salt solution, were mounted around the steel transport box*

# Project Report GeDet



*Container pick up with an special crane*



*Container weight 26 tons*



# Project Report ATLAS



*Preparing the 15 mm prototype chamber for final installation in the ATLAS detector*



# Project Report ATLAS



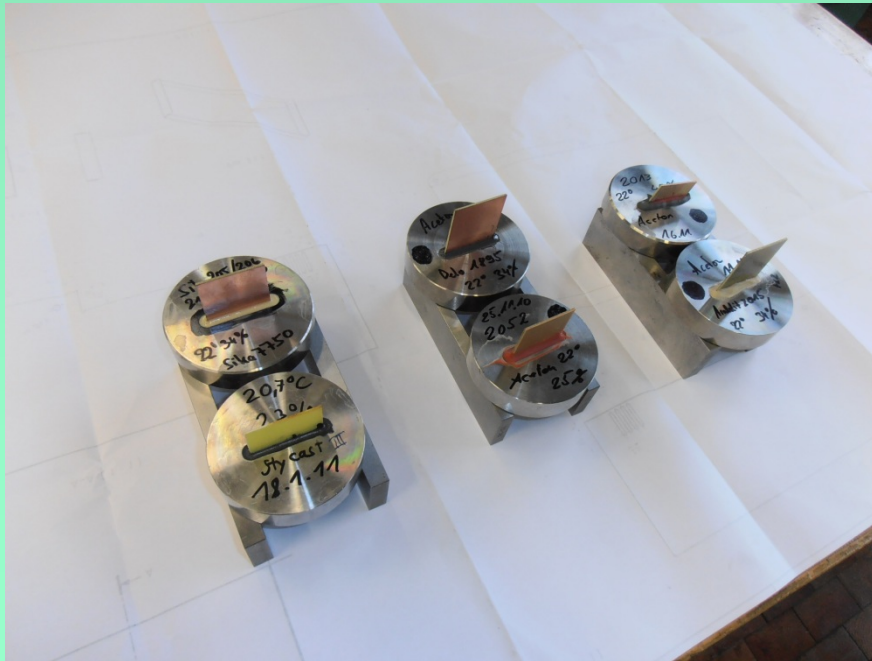
*With the new  
gas system*



# Project Report ATLAS



*The gluing tests for the feed through for the HEC II are finished.*



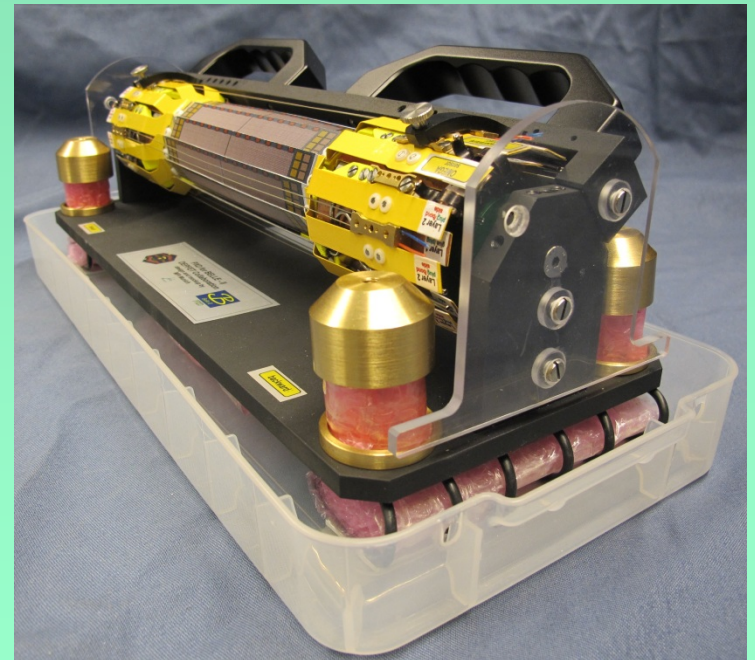
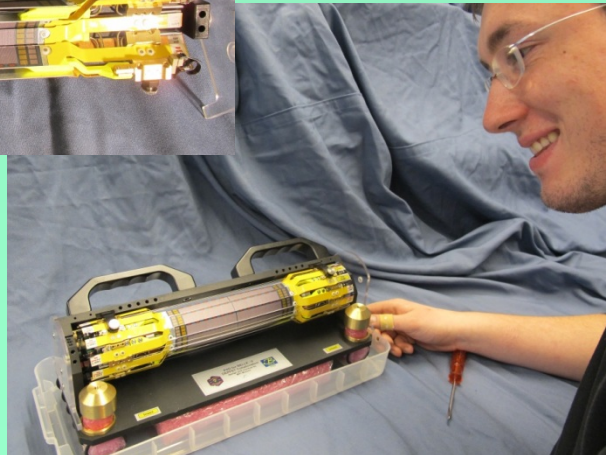
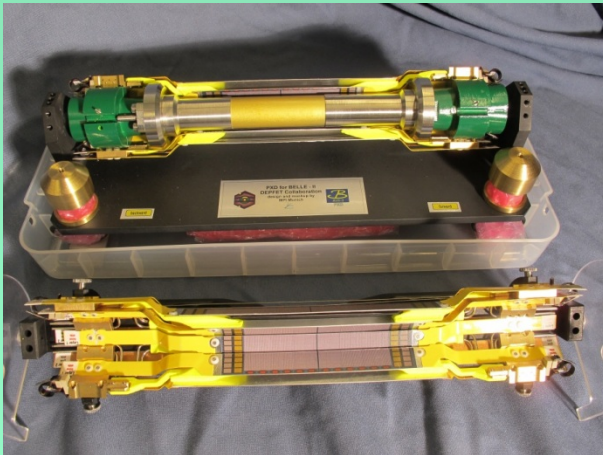
*The bonded joint is leak-proofed*



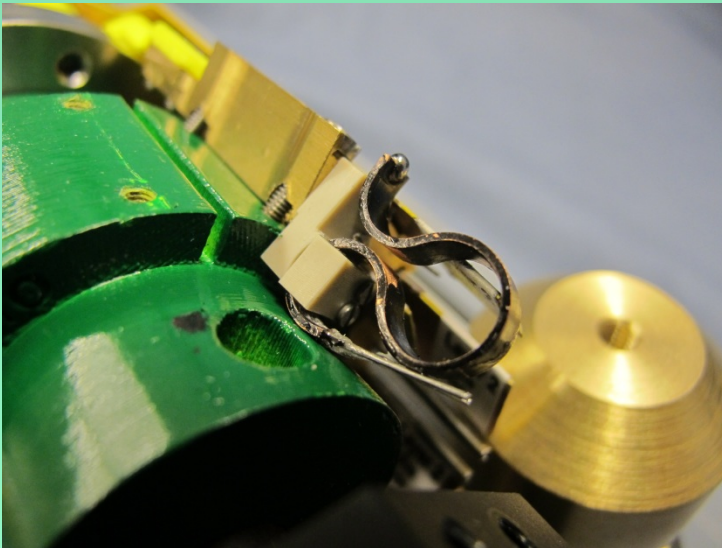
# Project Report Belle II



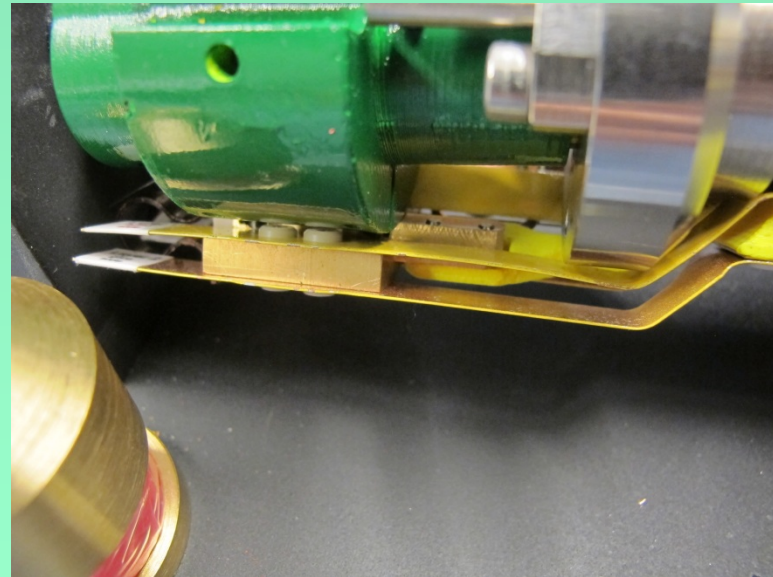
## Assembled mock up of PXD detector



# Project Report Belle II



*Fine details are showing*



*new machines  
new technologies*



*2011 was an very successfullly year for  
the mechanical department.*

*About 450 k€ were invested in new  
machines and technologies.*

*Here some examples*

# *new machines new technologies*



- *design office*

*CAD computer DELL Precision T 7500  
Xeon processor, 12 GB RAM, Raid 0*

*CAD software INVENTOR 2011  
FEM calculation software ANSYS*

*HP DeskJet T2300 printer, plotter and scanner till format A 0*

# *new machines new technologies*



- *Workshop*

*Orbital welding equipment*

*Welding of steel and stainless steel Tubes  
with diameter 3 – 275 mm*





# *new machines new technologies*



- *Workshop*

*Five new lathe machines, paid by Max-Planck society*



# *new machines new technologies*



- *Workshop*

*Special laser for engraving and cleaning process*





# *new machines new technologies*



- *Workshop*

*CAM technology to transfer CAD data to the milling machine*

*CAM computer DELL Precision T 7500*

*Xeon processor, 8 GB RAM, Raid 0*

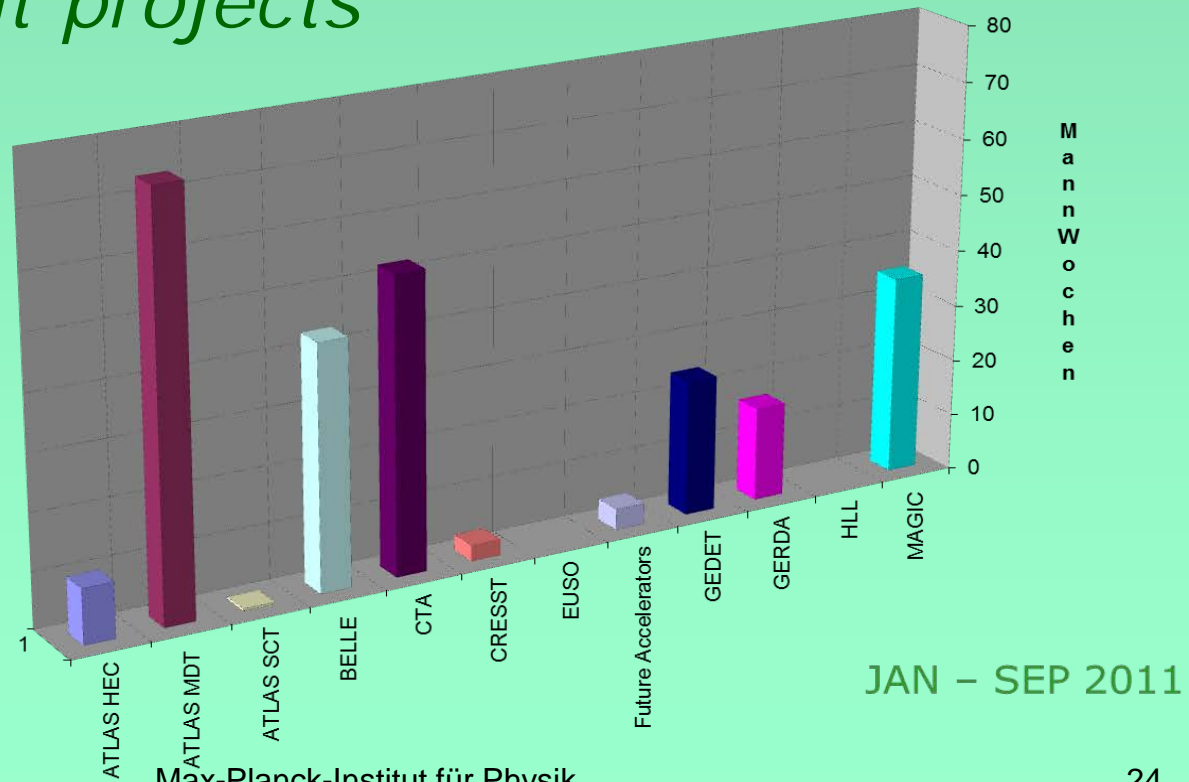
*CAD software INVENTOR 2011*

*CAM software HyperMill*

# some statistics



*Time and effort of the design office for the different projects*

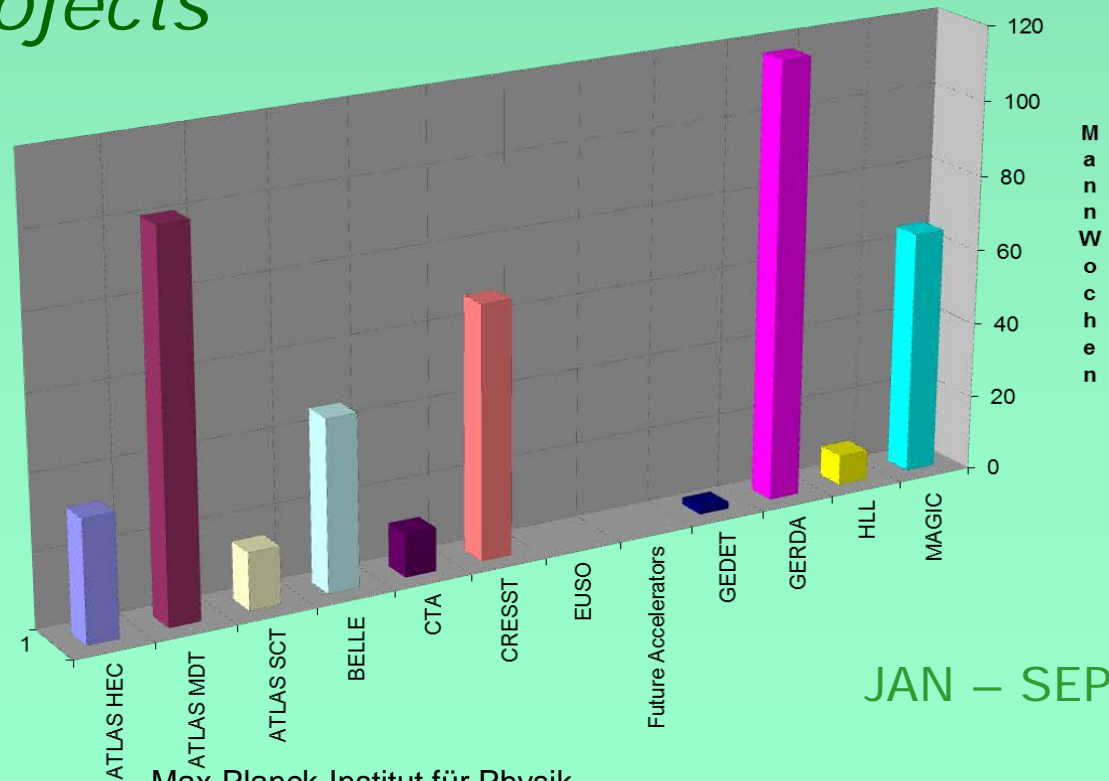


JAN - SEP 2011

# some statistics



*Time and effort of the workshop for the different projects*

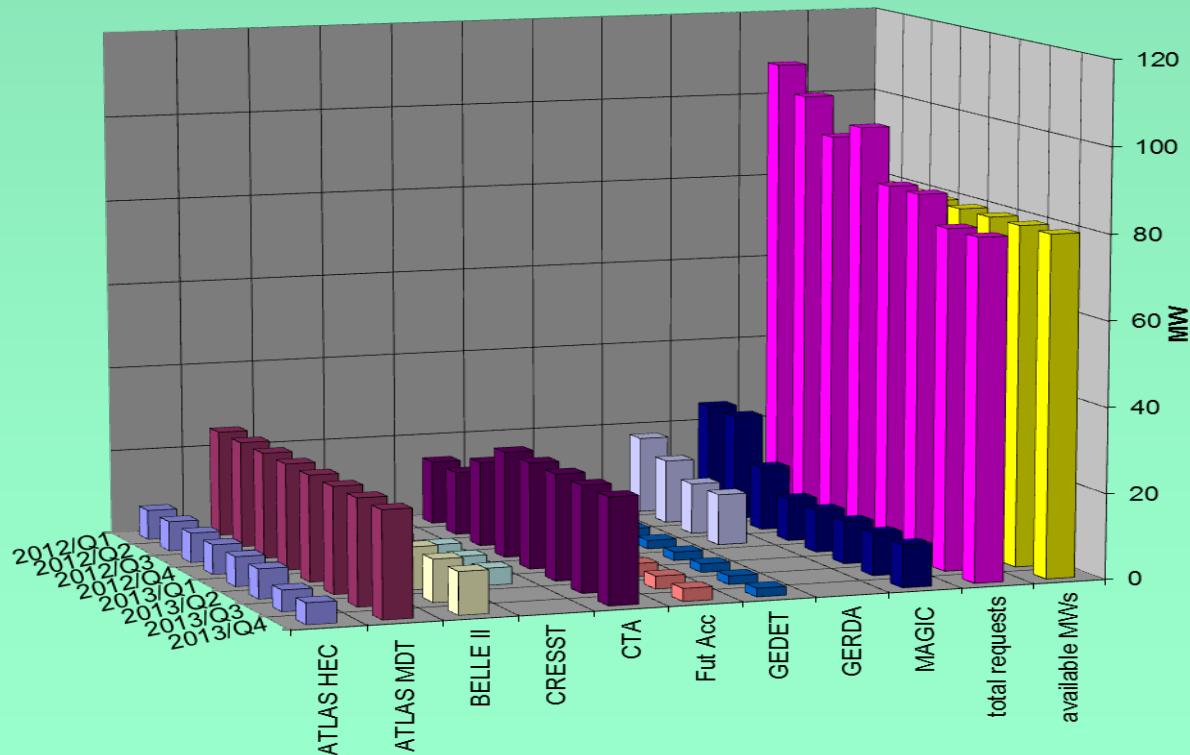


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# some statistics



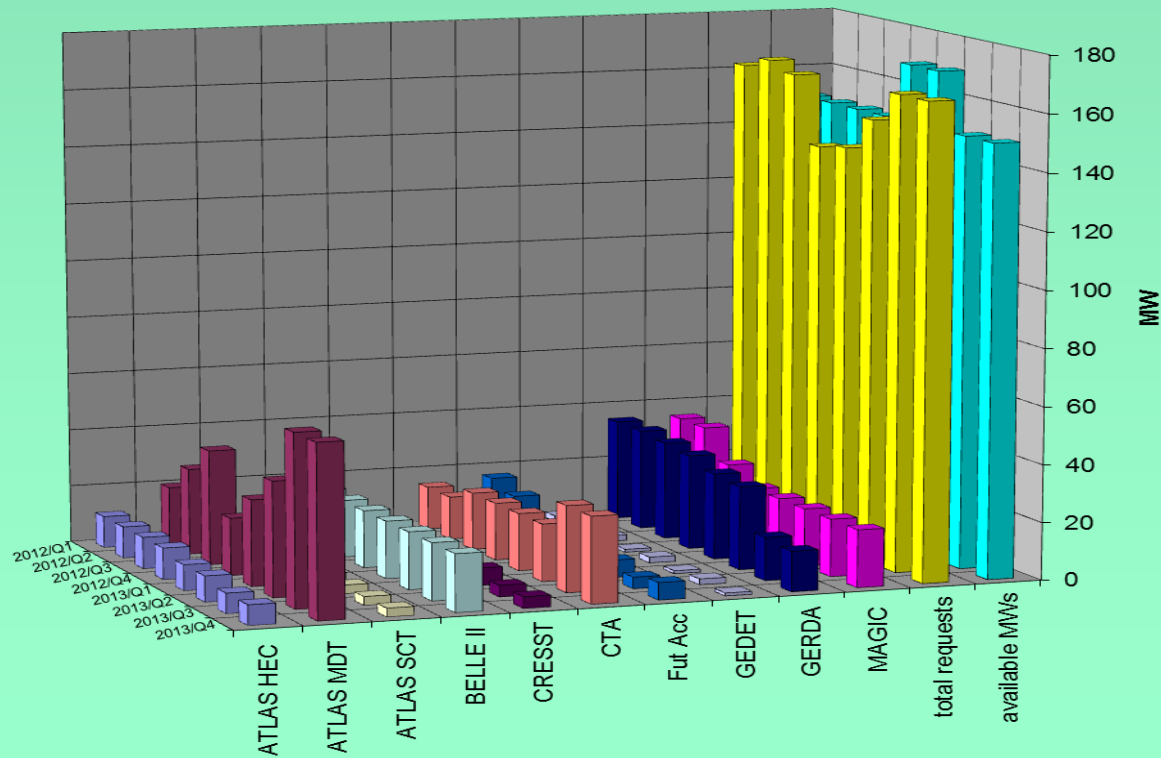
## Requirements to the design office for 2012



# some statistics



## Requirements to the workshop for 2012





*Thank you for your attention*