Status of ALFA project

Resume of the ALFA meeting(s) during ATLAS overview week (11.02.08-15.02.08) at CERN

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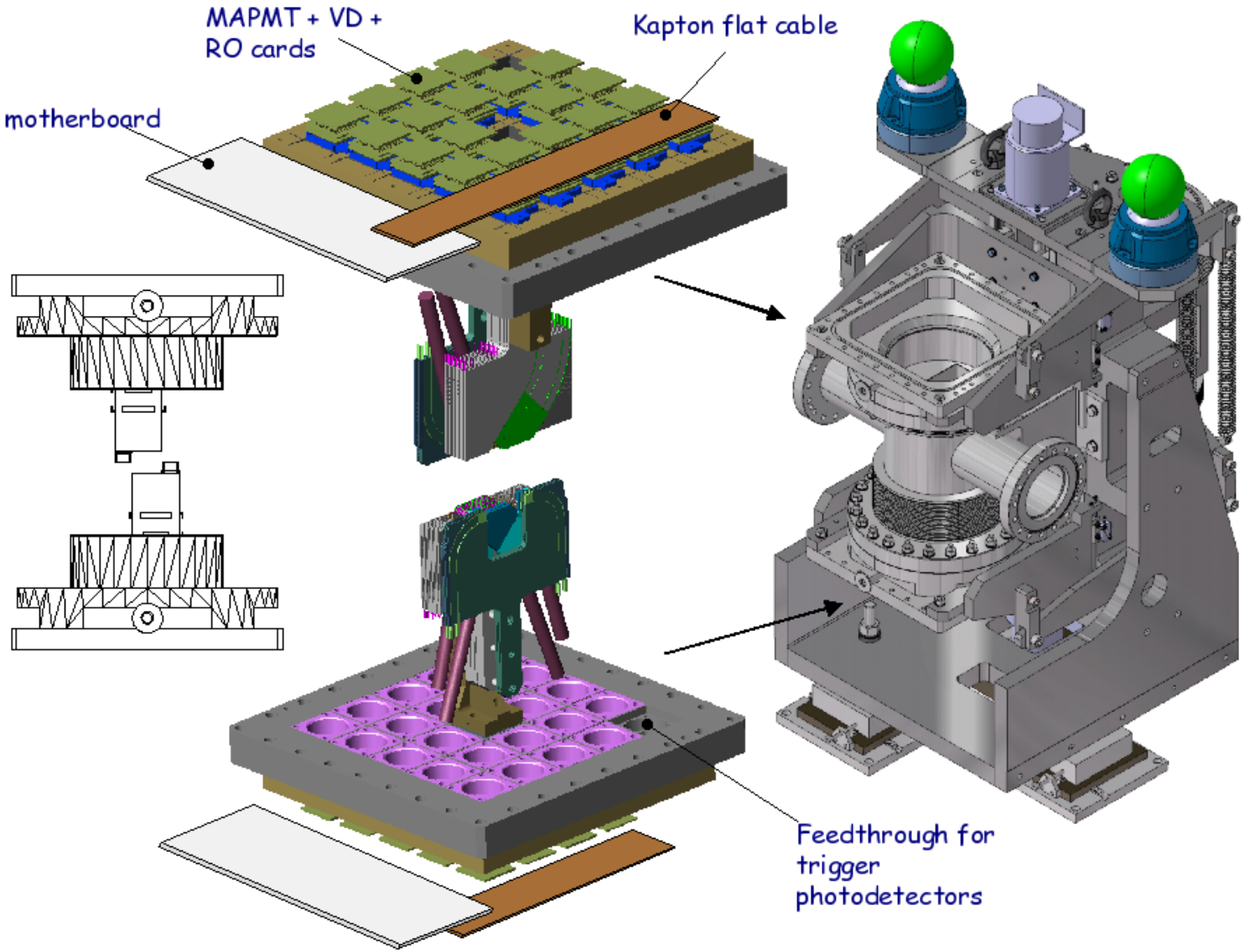
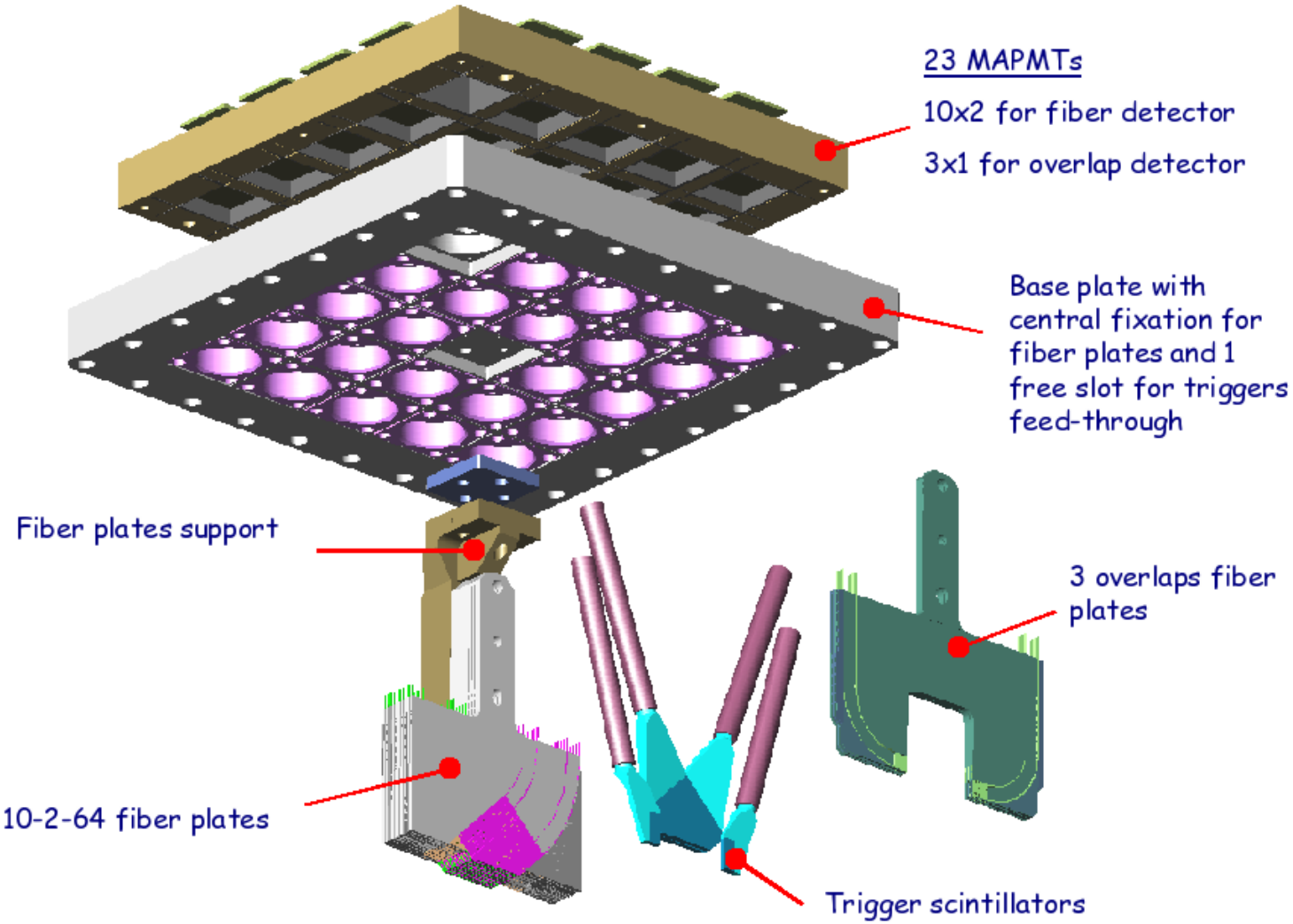
Outline

Outline

ALFA - Quick Introduction (1)



ALFA - Quick Introduction (2)



Introduction

History 2007:

- electronics schedule delayed + no good fibres available
  - → Proto-1 cannot be used as fully equiped Roman Pot(RP) in testbeam but it can help solve mechanics integration issues

Now 2008:

- Plan to build and test a fully functional prototype-2, which will be used as the first real RP
- Goal: detector fully ready by end of june to go into testbeam in july
- Afterwards: Go seamlessly into mass-production of RPs
- Decision: Task of Al-coating of fibres presently split between CERN and Lisbon
  - → sidecoating at CERN; end-cut and end-coating at Lisbon

Outline

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Fibre-coating Status

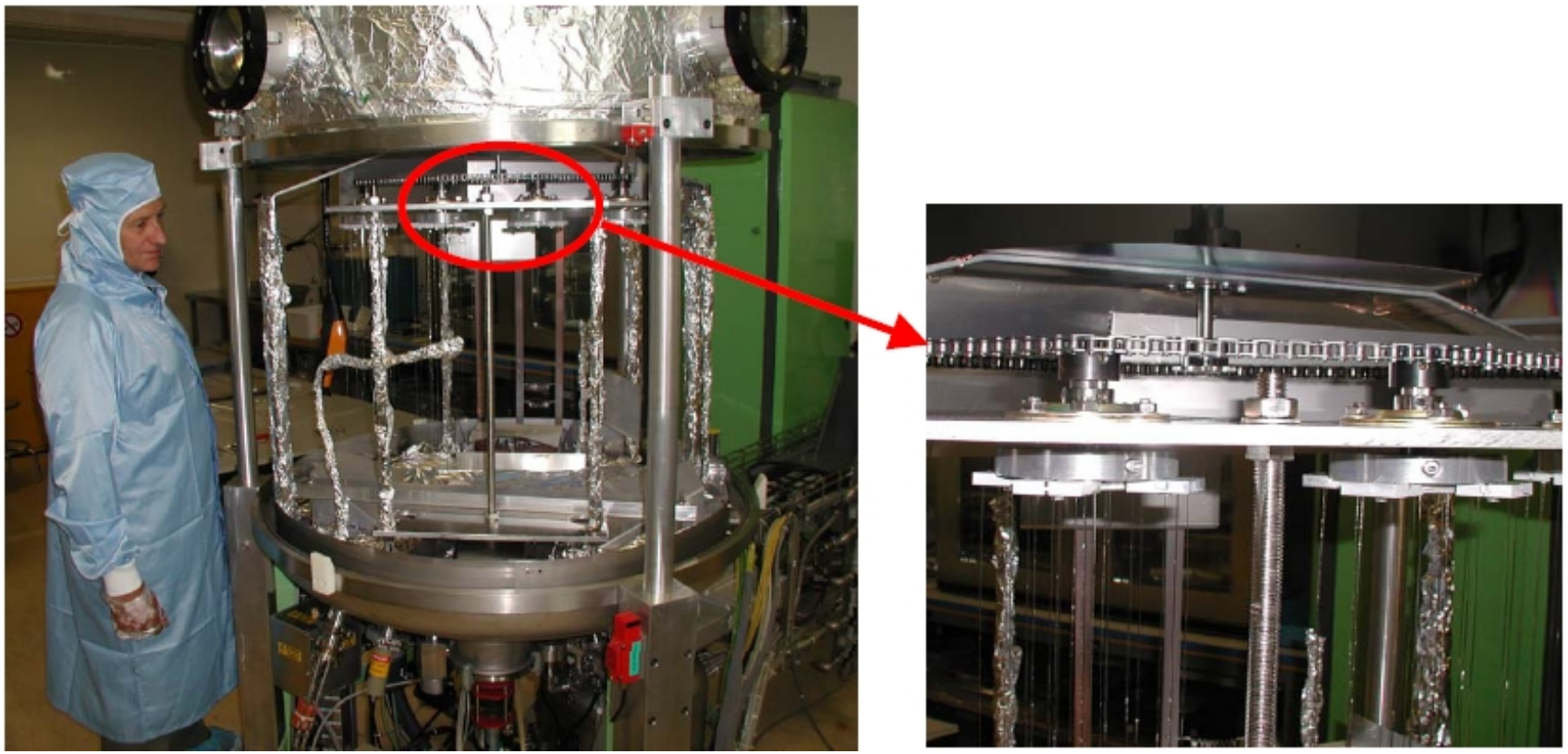
Lisbon Status:

- Al-adhesion makes progress, but still a lot of unresolved problems
- Ambitious plan: Be ready for mass-production in April

CERN Status:

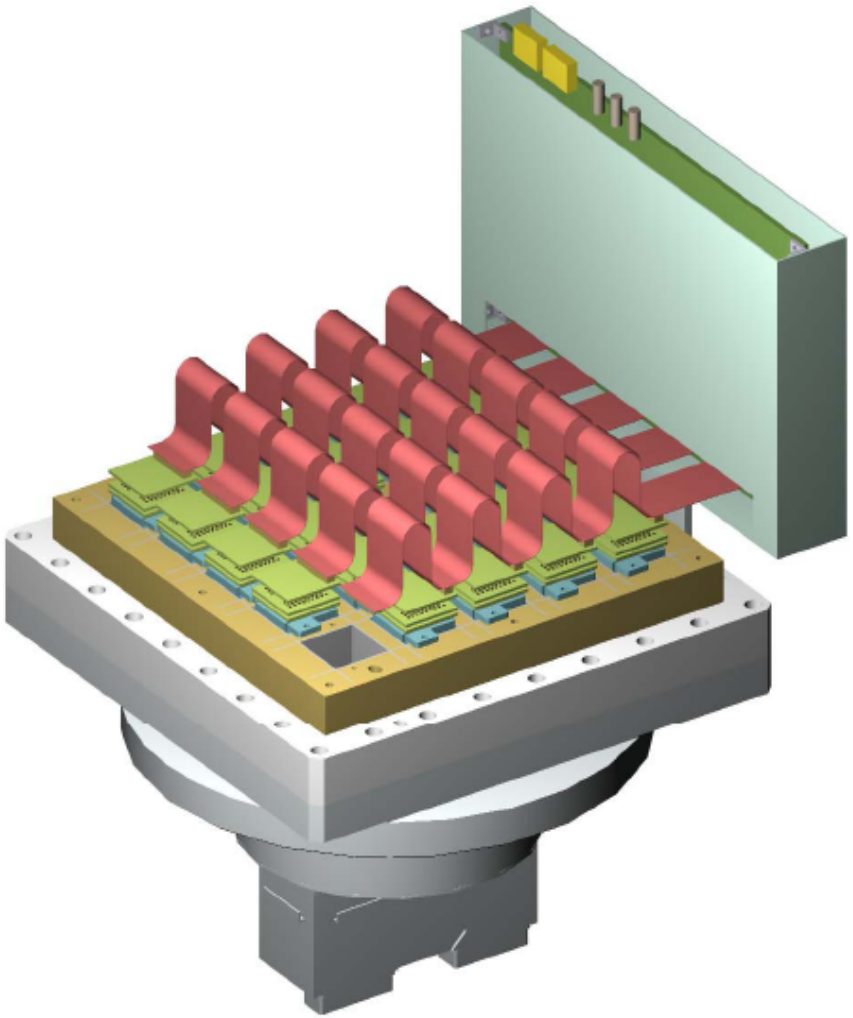
- Simple fibre coating machine (Al-evaporation) exists at CERN; has to be adapted to ALFA needs
- Design completed, assembly and test beginning of March
- $\sim$1500 fibres per week $\rightarrow$ delivered to Giessen mid of March

Fibre-coating Status



Outline

Electronics Status



Electronics Status

Status:

- Cable installation: 18 cables remaining; to-be-done end of February or in April
- Motherboard design fixed; awaiting OK for fabrication
- Overall PMF status: OK; still some minor open issues
  - → production of 32 PMFs by the end of March

Outline

Mechanics Status

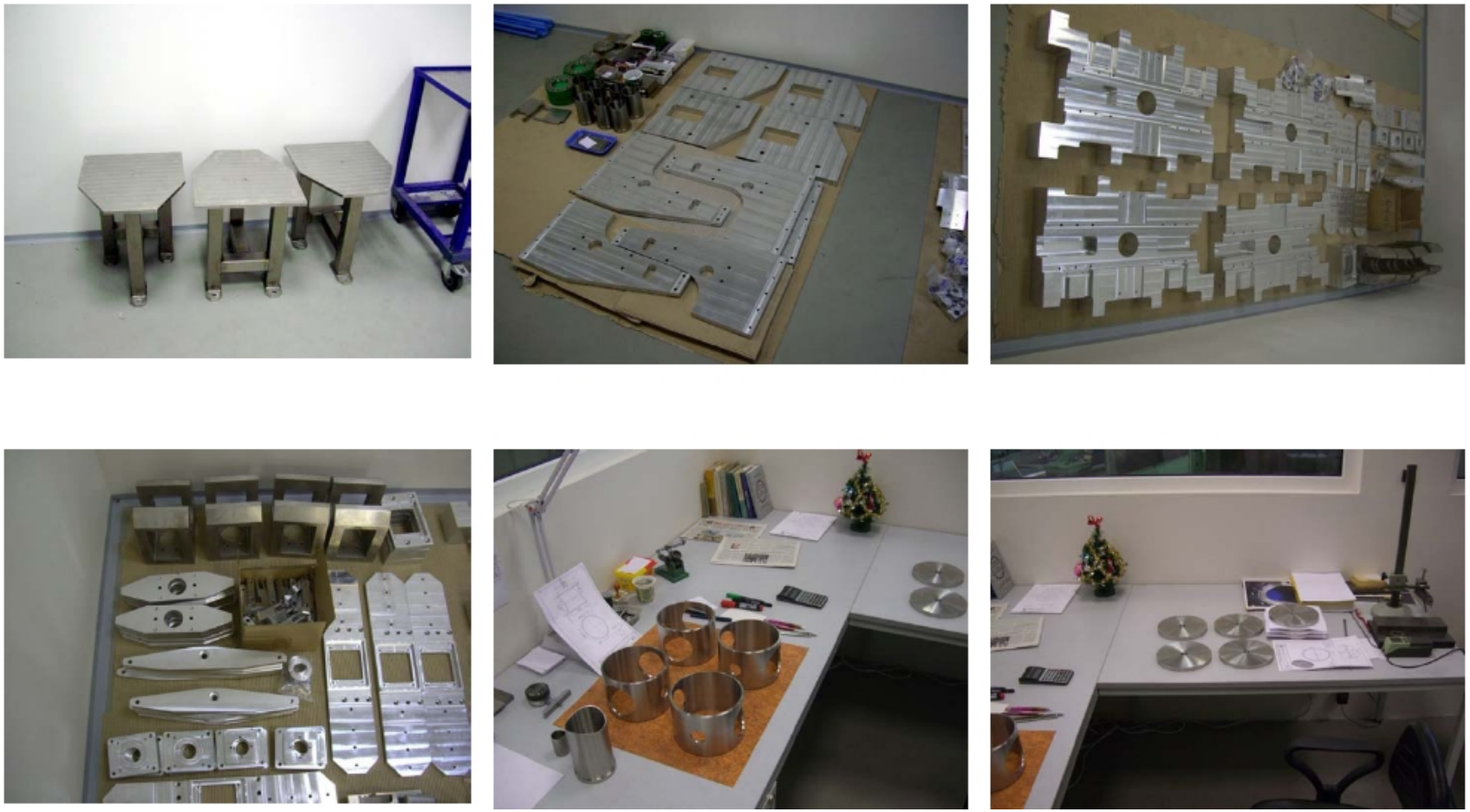


Figure: Roman Pot mechanical parts at machining company in Prague

Mechanics Status

Echoes from the machining company:

- All tolerances respected
- Vacuum protocol strictly applied
- Awaiting final visit end of February
  - → Afterwards: Immediate shipment of parts
- Mounting and measuring in March

Outline

DESY Status

MAPMT measurement:

- Progress in PMT measurement
- A fit method has been established
- Gain- and photoefficiency-measurements show good results already

Metrology measurement:

- Program for ”automatic” measurement near completion
- Documentation still needs to be written
- Writing of my diploma thesis slows down progress

Trigger-Tiles:

- Read-out and electronics still unclear
- Decision to be taken: Which type of trigger tiles to use?

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Trigger-Tiles:

- Read-out and electronics still unclear
- Decision to be taken: Which type of trigger tiles to use?
  - Testbeam-results → see K.H. Hiller’s talk

Upcoming tasks at DESY

Metrology tasks to be done at DESY (Hamburg):

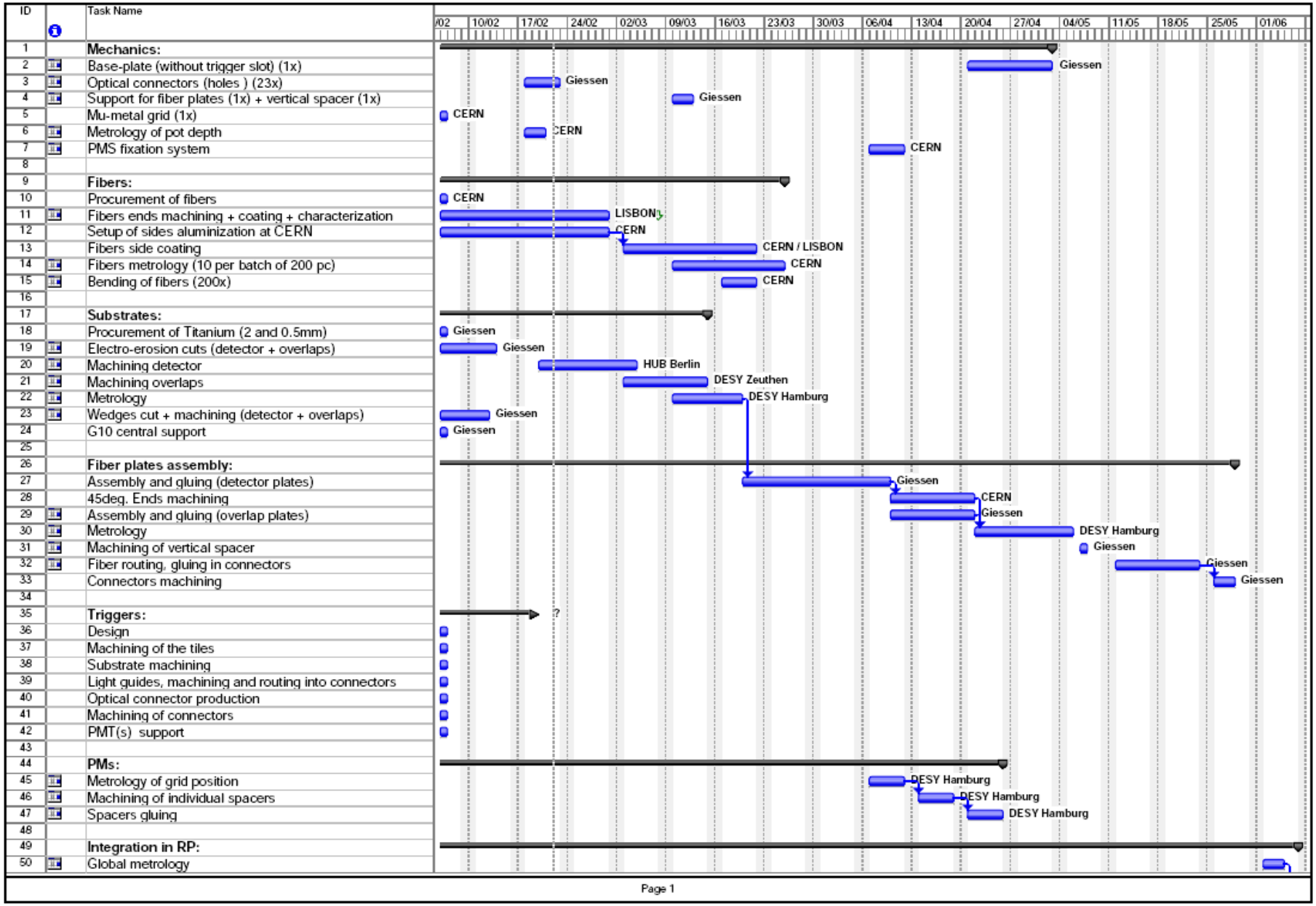
- Ti-substrate: forseen to be done mid of March
- Sensors(Fibres+substrate): forseen to be done end of April/beginning of May
- PMTs: forseen to be done before june (also: machining and glueing of shims)

Outline

Conclusion+Outlook

Conclusion

- Progress in every field of the project
- DESY getting more and more involved: GOOD!


ID
Task Name
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1 Mechanics:
2 Base-plate (without trigger slot) (1x)
3 Optical connectors (holes) (23x)
4 Support for fiber plates (1x) + vertical spacer (1x)
5 Mu-metal grid (1x)
6 Metrology of pot depth
7 PMS fixation system
8
9 Fibers:
10 Procurement of fibers
11 Fibers ends machining + coating + characterization
12 Setup of sides aluminization at CERN
13 Fibers side coating
14 Fibers metrology (10 per batch of 200 pc)
15 Bending of fibers (200x)
16
17 Substrates:
18 Procurement of Titanium (2 and 0.5mm)
19 Electro-erosion cuts (detector + overlaps)
20 Machining detector
21 Machining overlaps
22 Metrology
23 Wedges cut + machining (detector + overlaps)
24 G10 central support
25
26 Fiber plates assembly:
27 Assembly and gluing (detector plates)
28 45deg. Ends machining
29 Assembly and gluing (overlap plates)
30 Metrology
31 Machining of vertical spacer
32 Fiber routing, gluing in connectors
33 Connectors machining
34
35 Triggers:
36 Design
37 Machining of the tiles
38 Substrate machining
39 Light guides, machining and routing into connectors
40 Optical connector production
41 Machining of connectors
42 PMT(s) support
43
44 PMs:
45 Metrology of grid position
46 Machining of individual spacers
47 Spacers gluing
48
49 Integration in RP:
50 Global metrology
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Thank You!

For more information, please visit the following CERN-Indico-pages:

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http://indico.cern.ch/conferenceDisplay.py?confId=28729
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http://indico.cern.ch/conferenceDisplay.py?confId=26924
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