

AHCAL

Mechanics and test beam setups

status report

Karsten Gadow
AHCAL Main Meeting
DESY, 09.12.2013

Outline AHCAL Status Report

Mechanics and test beam setups

1. DESY II test beam setup
2. PS/SPS AHCAL test beam setup
3. PS/SPS AHCAL Tungsten test beam setup
4. AHCAL cabling and cooling setup
5. AHCAL absorber structure modification (earth quake)



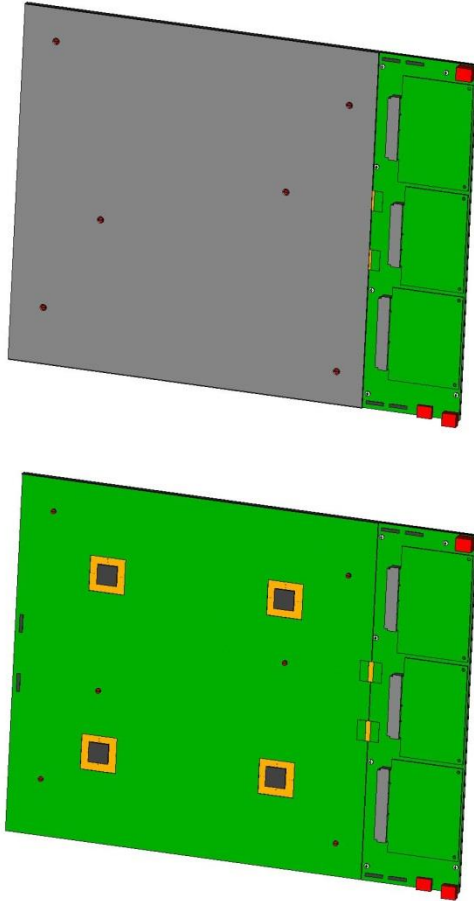
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Mechanics and test beam setups

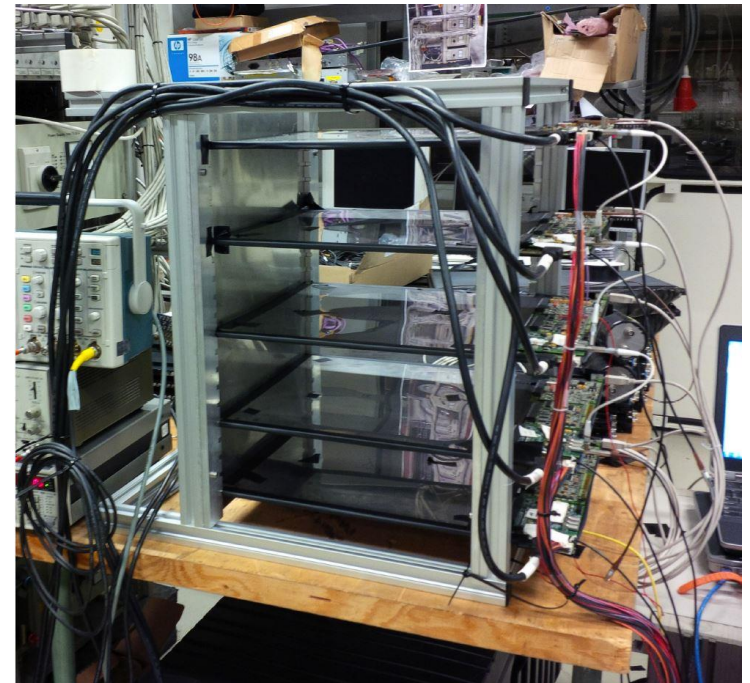
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15 pieces 1xHBU housings are produced at DESY



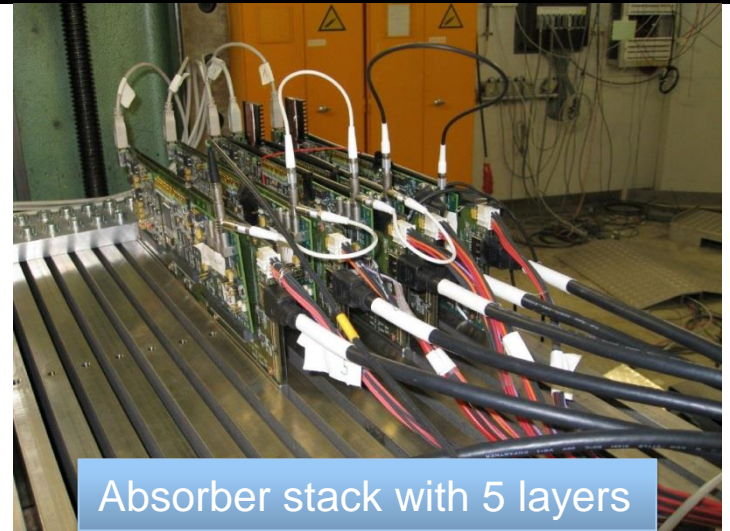
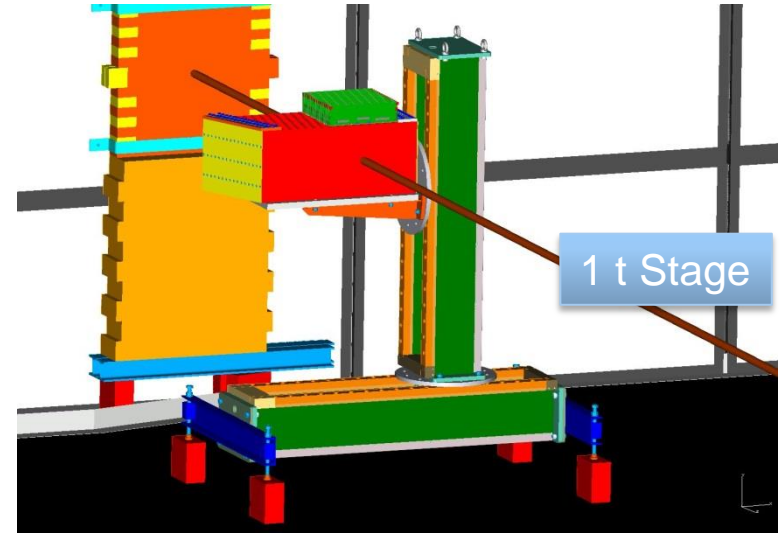
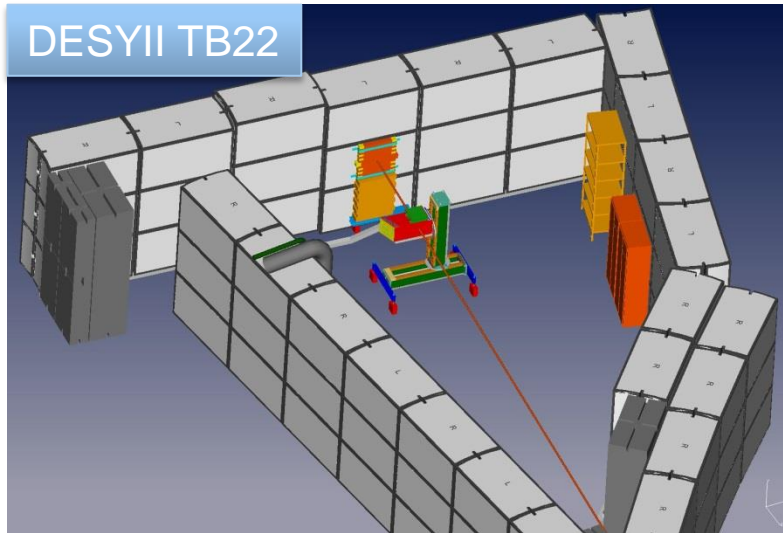
all 15 layers will be tested with air stack



15 HBU's with CIB's has to be mounted and commissioned

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DESY II test beam setup



Task list (Summary):

> Test beam setup

- position inside the TB 22 allows parasitic measurements up to KW10 2014
- test beam schedule fixed KW1+2 2014
- supply and read out hardware ongoing
- 15 layer absorber structure installed
- 1 t DESY II Stage installed
- 15 layer air stack ready

> Detector layer production

- production of 15 pieces 1xHBU housings ready
- production of 15 HBU's and install tiles 6 done
- commission and beam test in air ongoing

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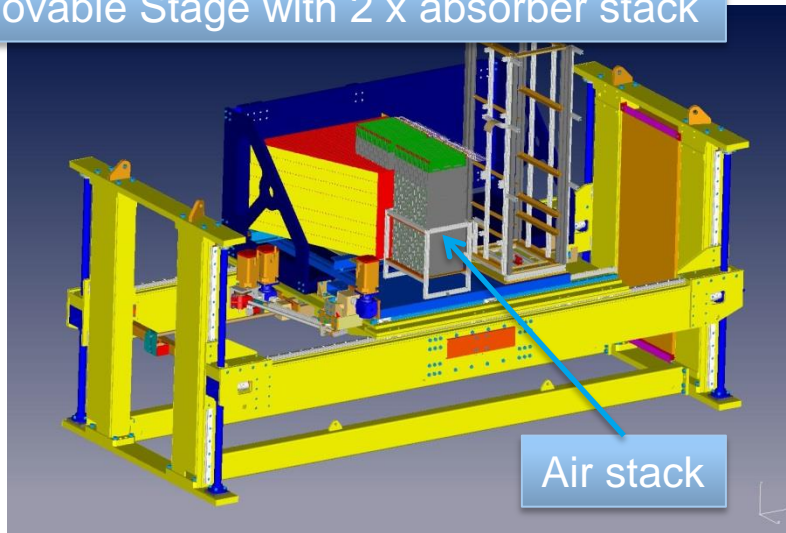
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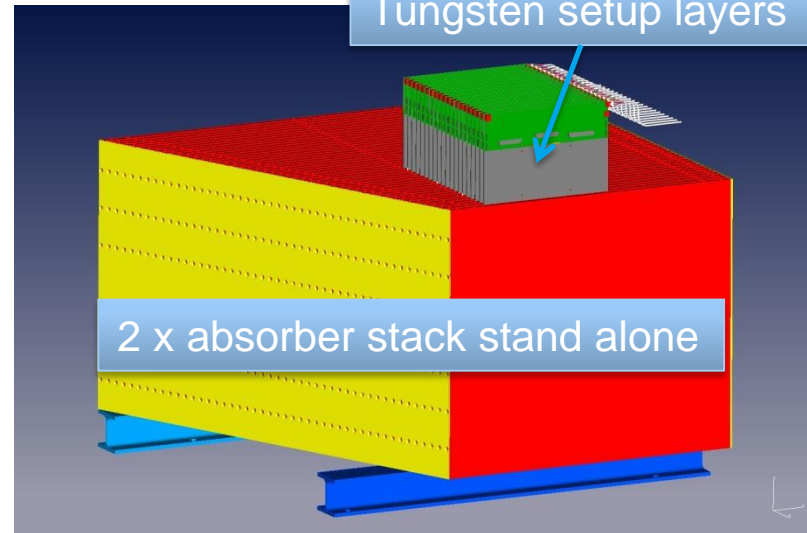
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PS/SPS AHCAL test beam setup

Movable Stage with 2 x absorber stack



Tungsten setup layers



Task list (Summary):

> Test beam setup

- position inside PS/SPS ?
- test beam schedule ?
- supply, read out and cooling scheme ongoing
- install absorber structure self standing or with Movable Stage ?
- install new GUI for Movable Stage control ongoing

> Detector layer production

- production of 2 x 50 x 2xHBU-extended housings (MPI) ongoing
- production of 2 x 48 x 2 HBU's and install tiles ?
- production of 10 x HBU dummy's ?
- commission and test ?

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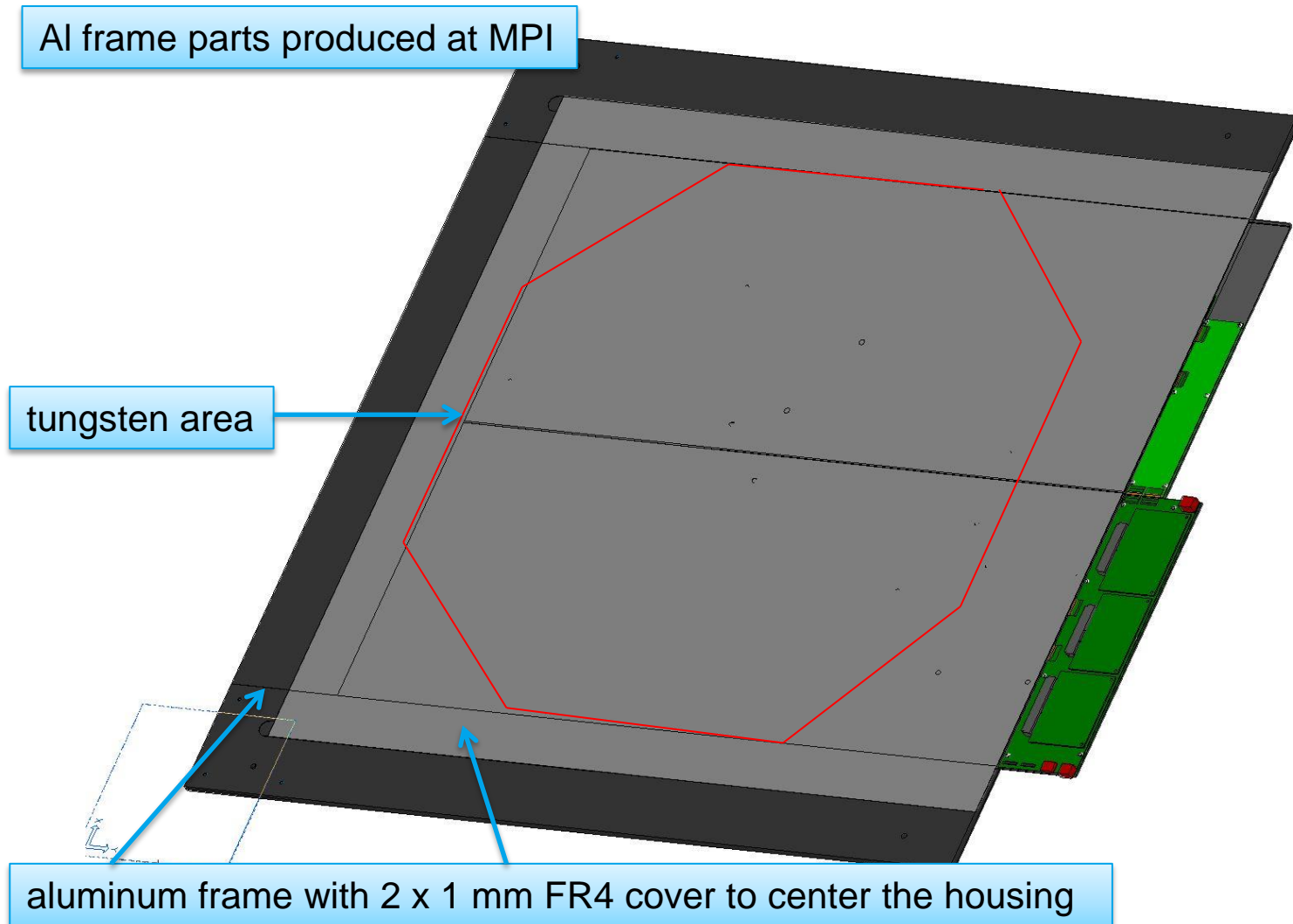
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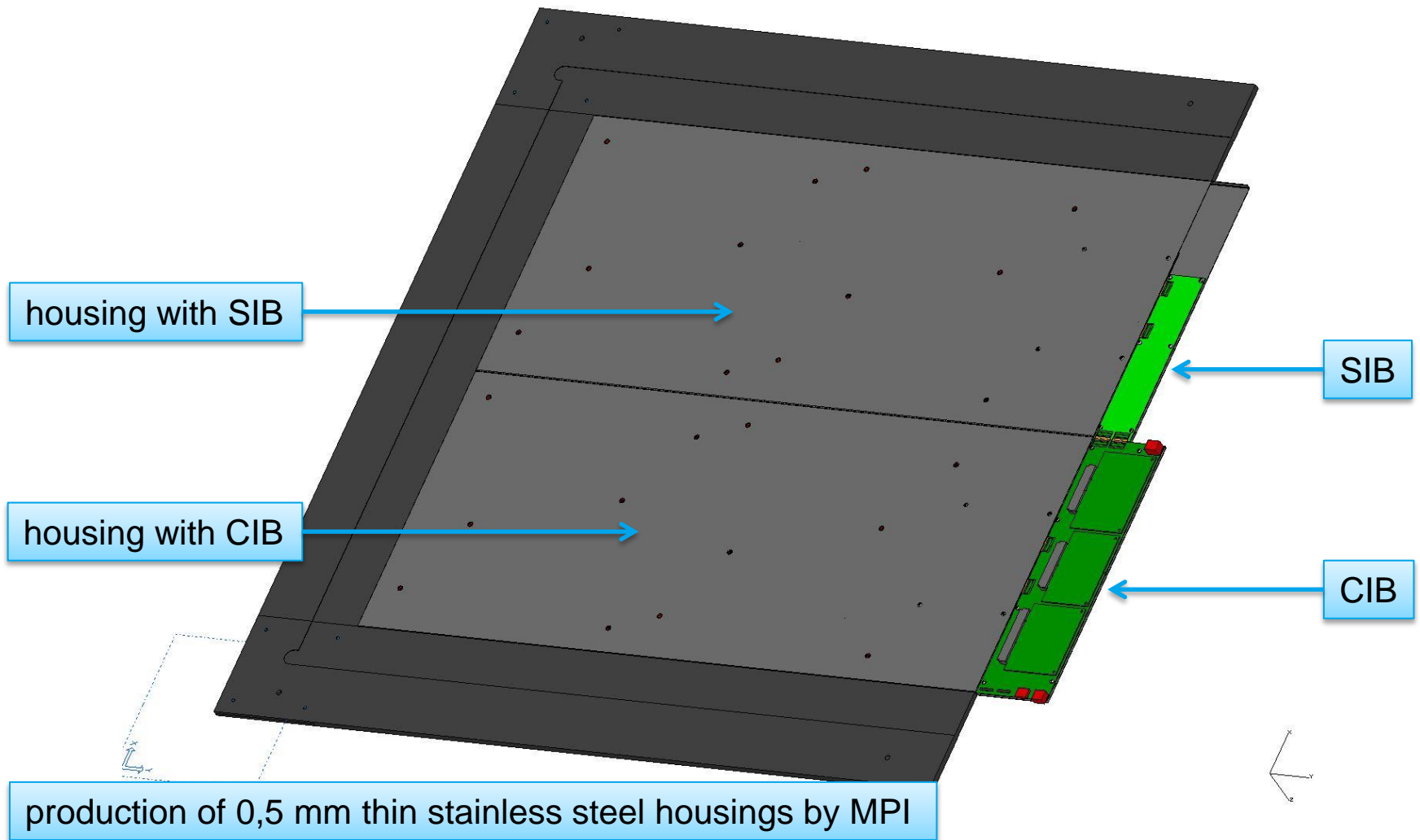
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PS/SPS AHCAL Tungsten test beam setup



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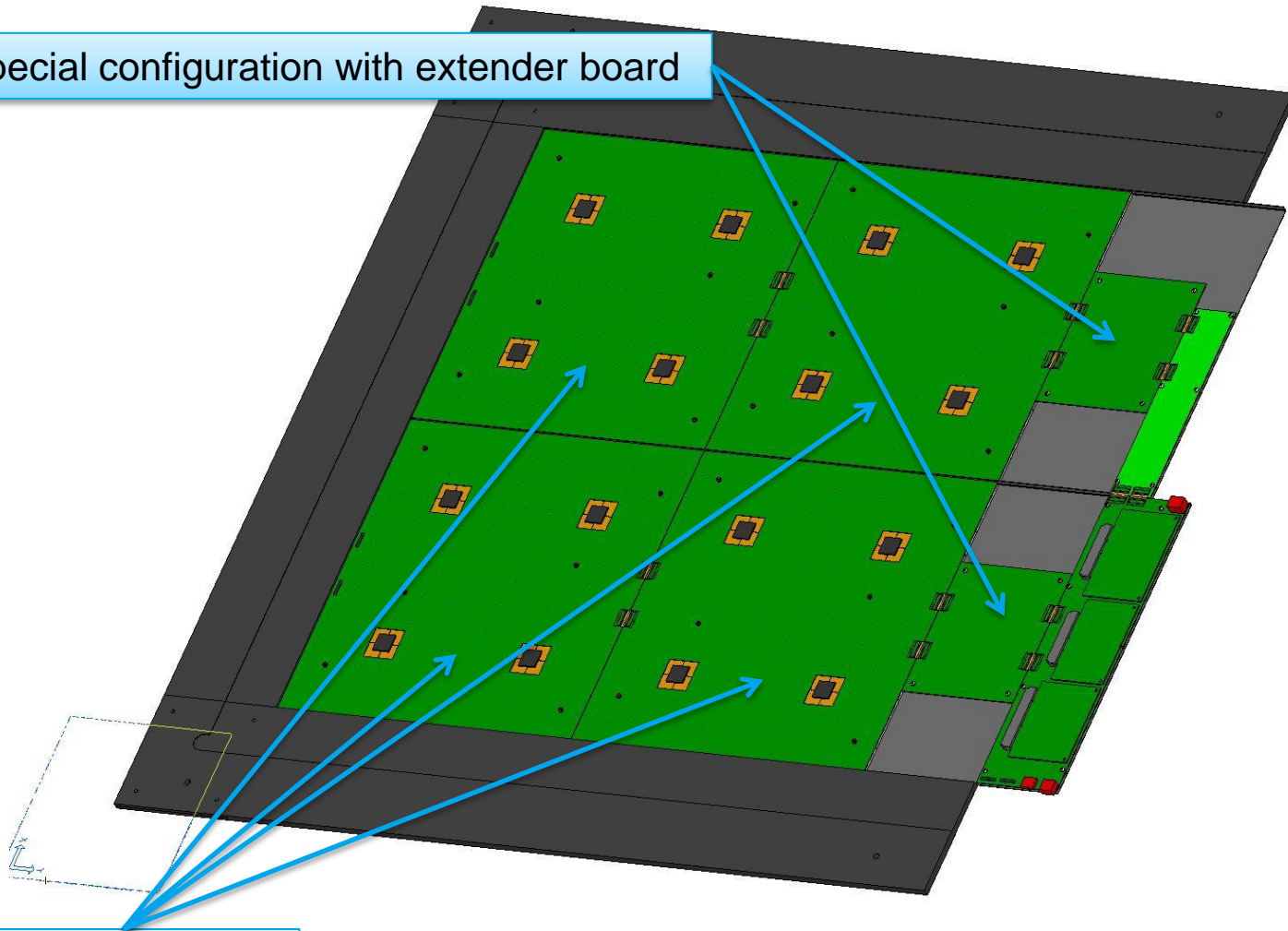
PS/SPS AHCAL Tungsten test beam setup



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PS/SPS AHCAL Tungsten test beam setup

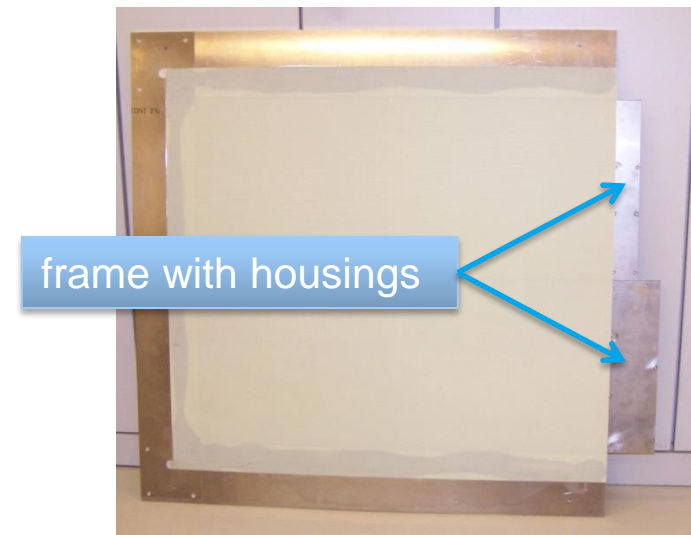
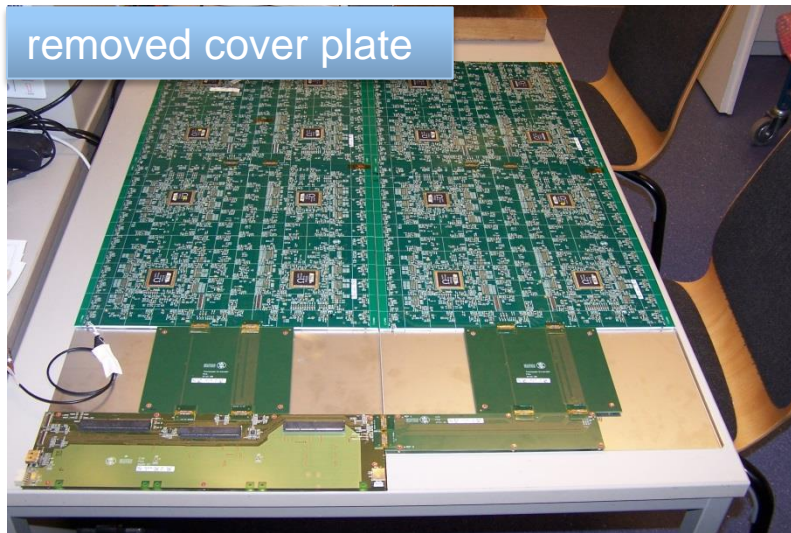
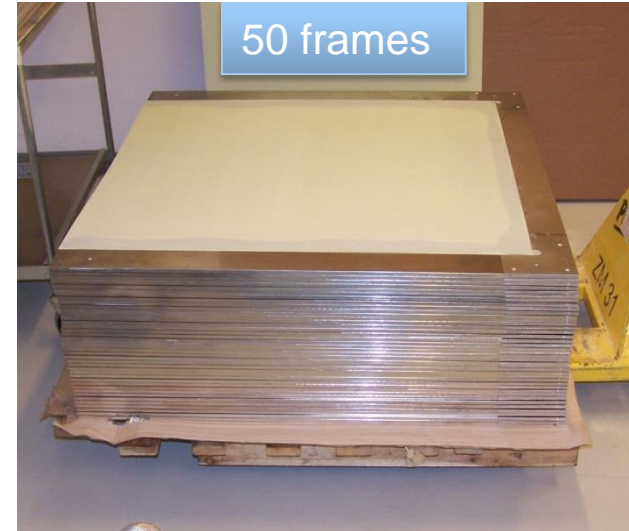
special configuration with extender board



4 HBU's per layer

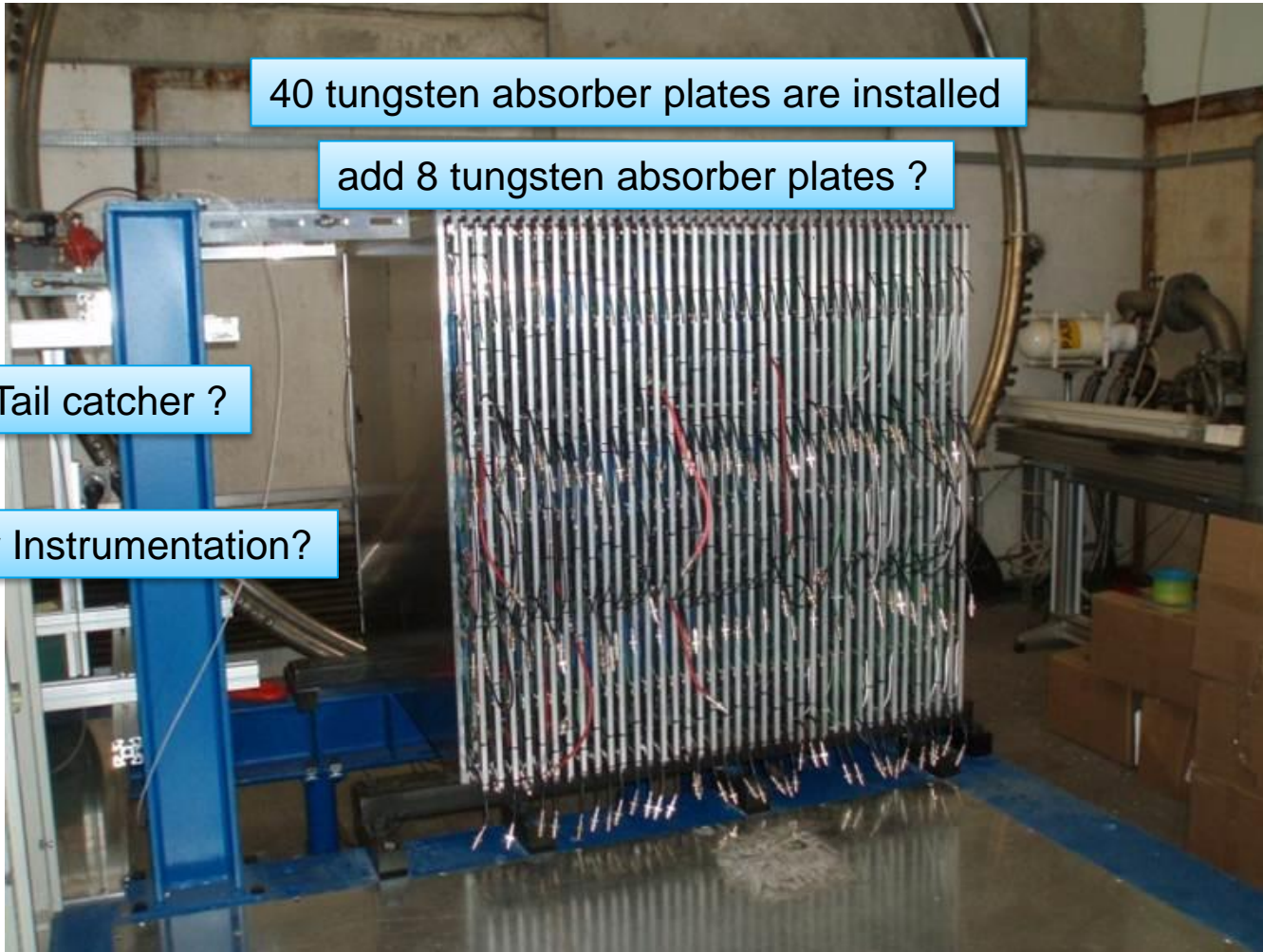
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PS/SPS AHCAL Tungsten test beam setup



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PS/SPS AHCAL Tungsten test beam setup



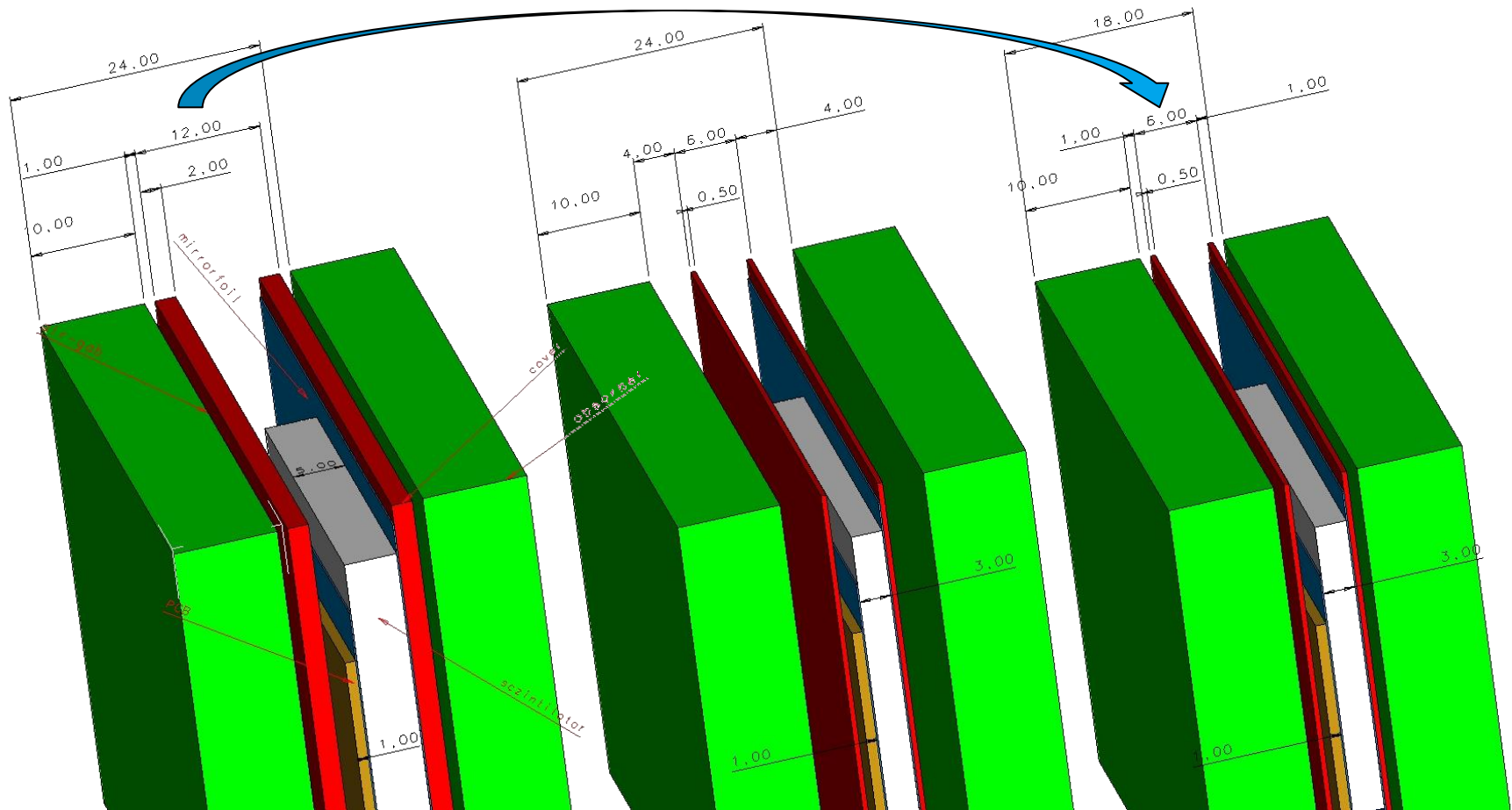
40 tungsten absorber plates are installed

add 8 tungsten absorber plates ?

Install Tail catcher ?

Tail Catcher Instrumentation?

Modification of the tungsten absorber structure ?



Task list (Summary):

> Test beam setup

- configuration 48 layers ?
- test beam schedule ?
- supply, read out and cooling preparation ongoing
- modify tungsten absorber structure ?
- Tail Catcher installation ?

> Detector layer production

- production of 50 frame parts (MPI) and mounting with facing (DESY) ready
- production of 2 x 50 x 2xHBU-extended housings (MPI) ongoing
- production of 2 x 48 x 2 HBU's and install tiles ?
- commission and test ?

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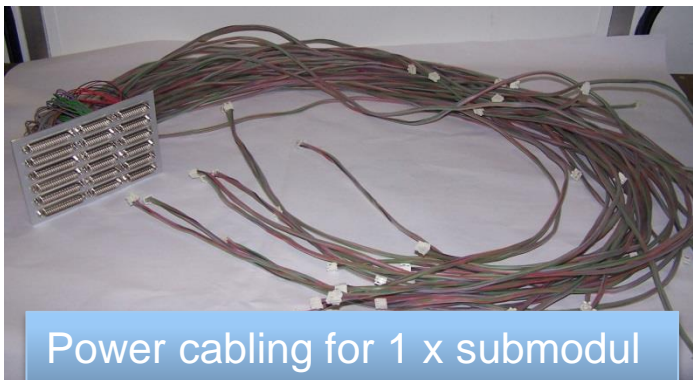
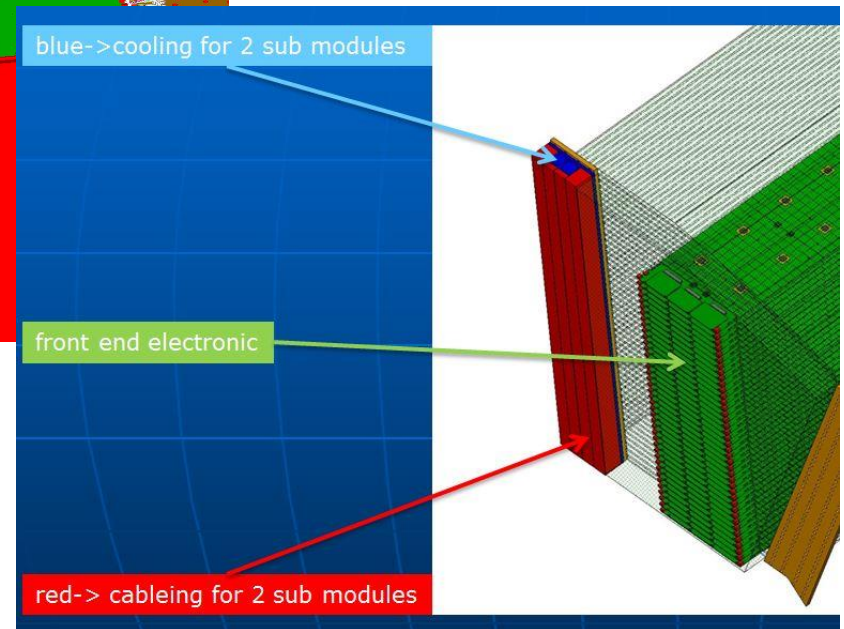
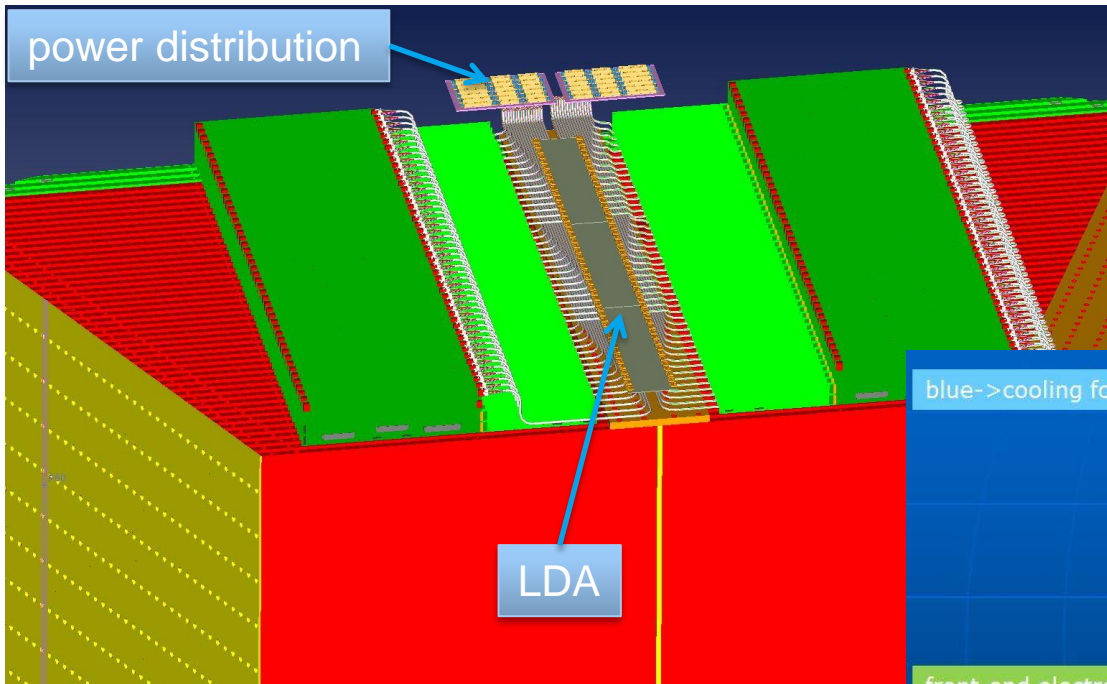
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cabling and cooling setup



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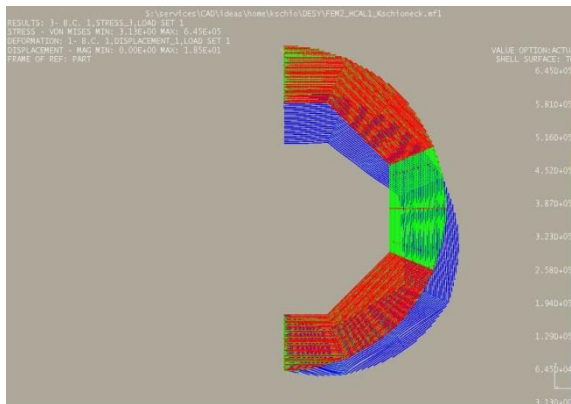


ILD workshop, Cracow, 24-26 September 2013

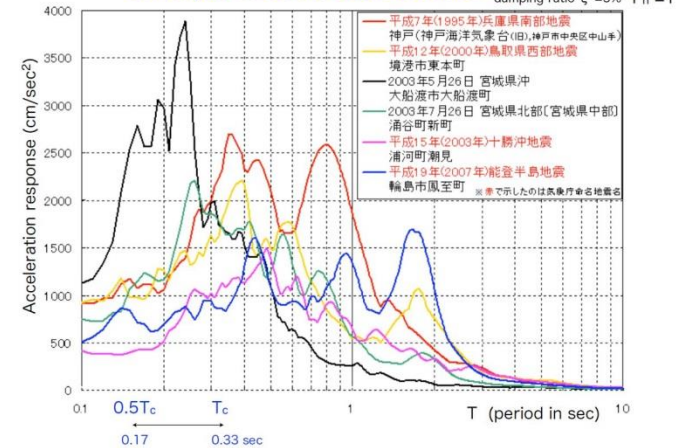
Summary on seismic issues

1. Earthquake protection will follow the ISO3010; uses analysis with acceleration response spectrum
2. Earthquake model at Kitakami site : 150 gal (100 years) as earthquake representative , where flat period between 0.17 to 0.34sec ($dT_c - T_c$) the amplification factor(f_A) of less than 2.5
3. We would like to analyze ILD earthquake protection.
 - Rigidness of ILD detector
 - Isolation method with respect to the platform and detailed layout needed

2013年9月26日 木曜日



Acceleration Response Spectrum of various earthquakes at the observatories



2013年9月26日 木曜日

Simulation for AHCAL barrel and end cap structure must be done soon!