LCGT SAS design status

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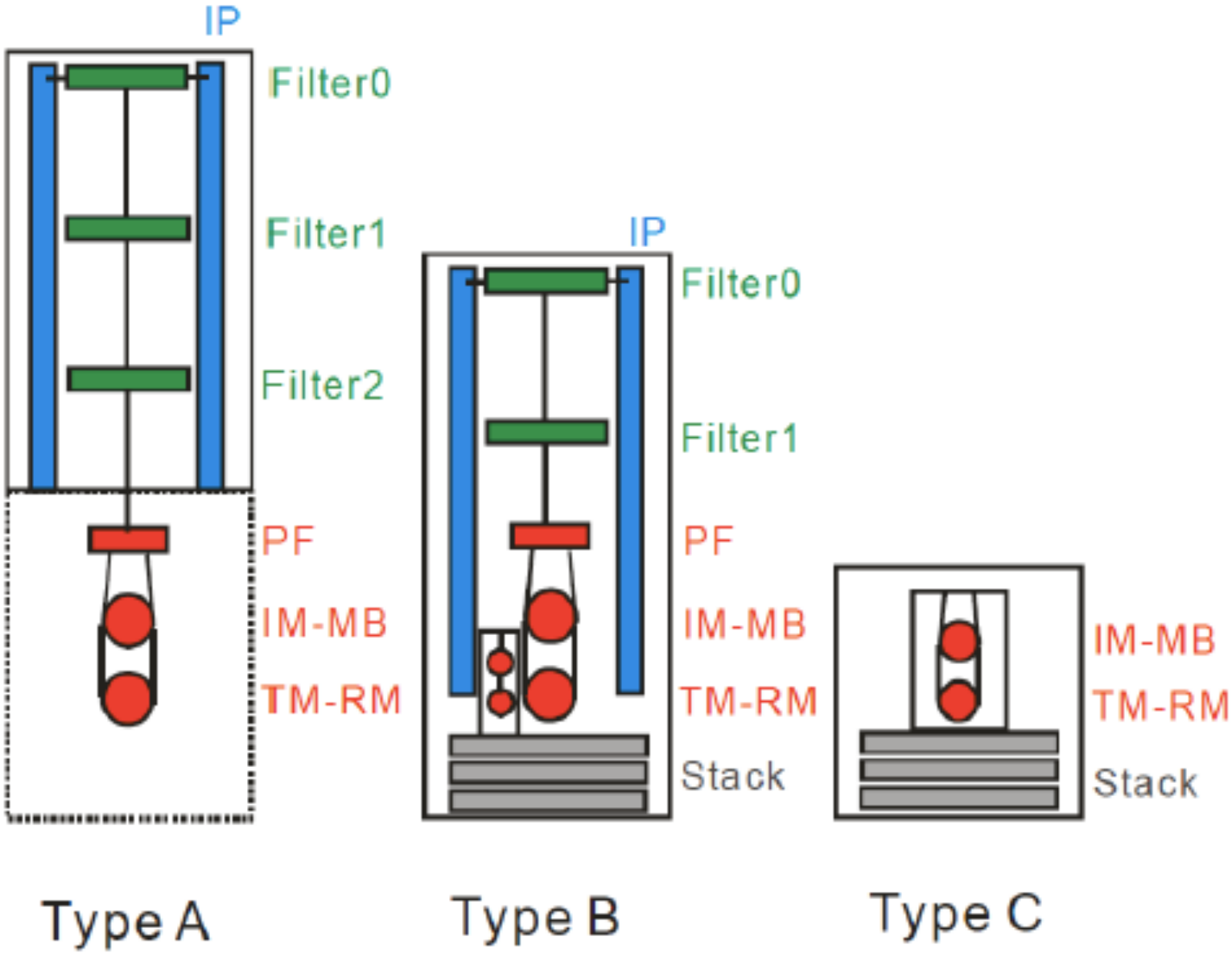
The structure and functions of
LCGT SAS

JGW-G1100311

Attenuator types



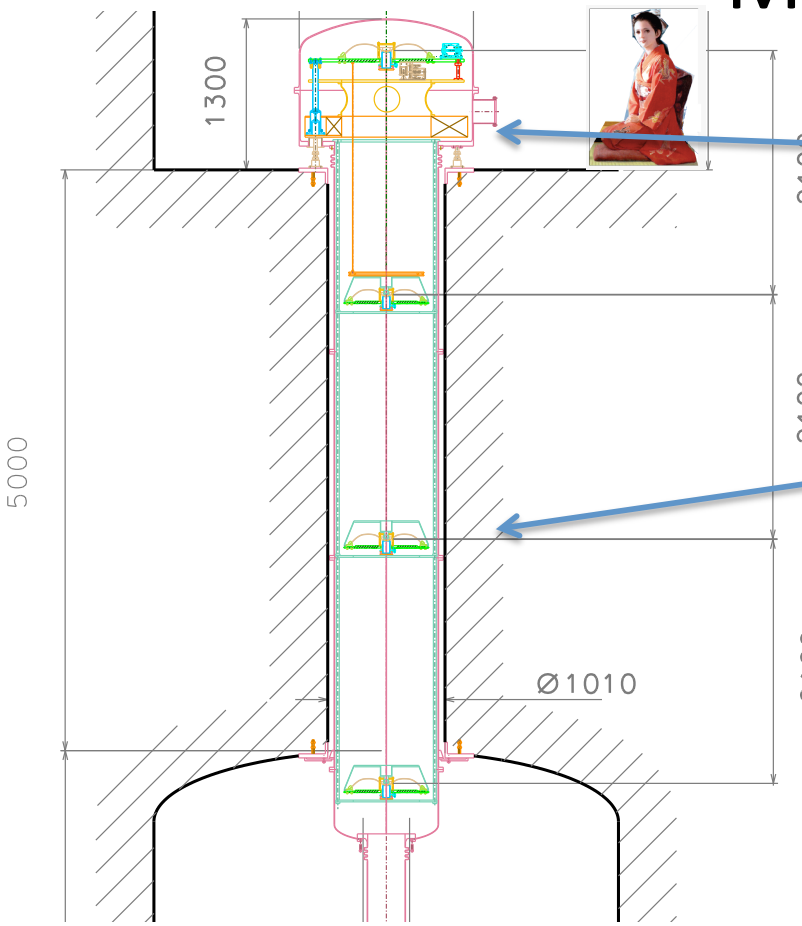
SAS Seismic configuration

- Passive attenuation
- Based on Geometric Anti Springs (GAS)
- And inverted pendula on first stage

Type A

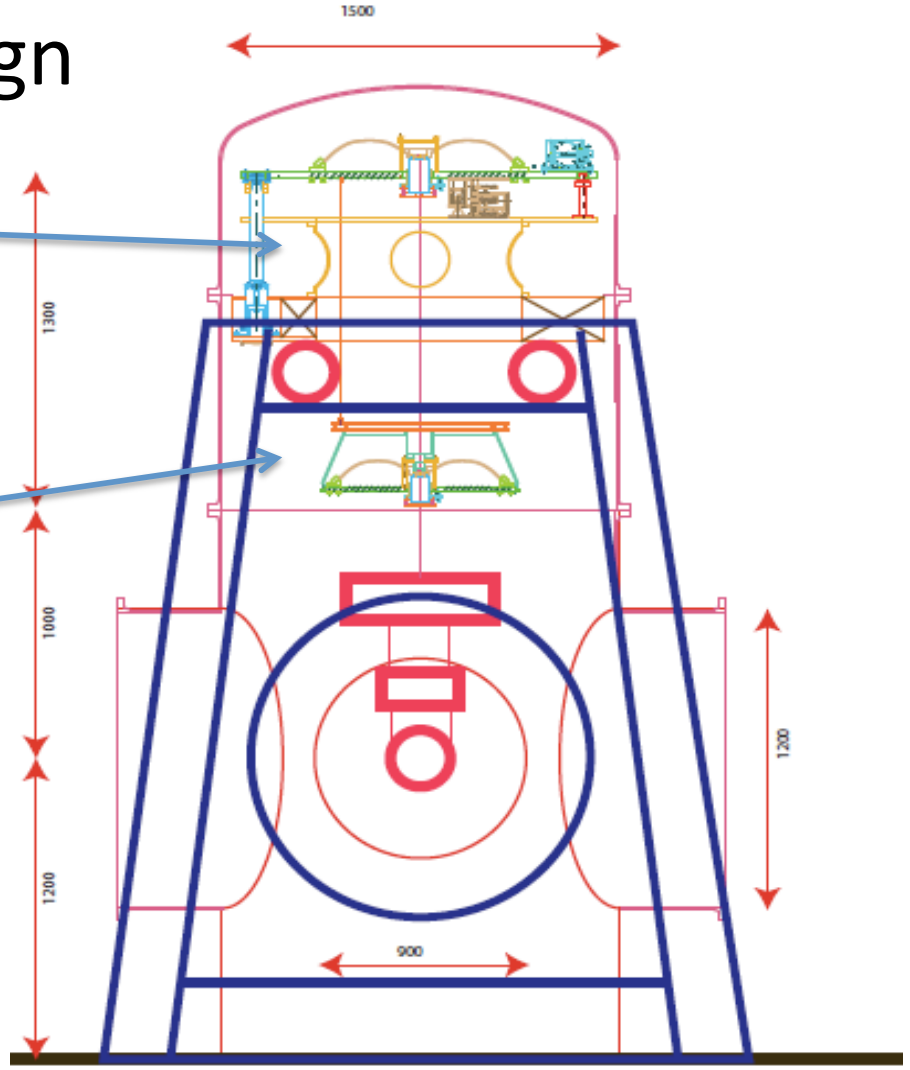
Type B

Modular design



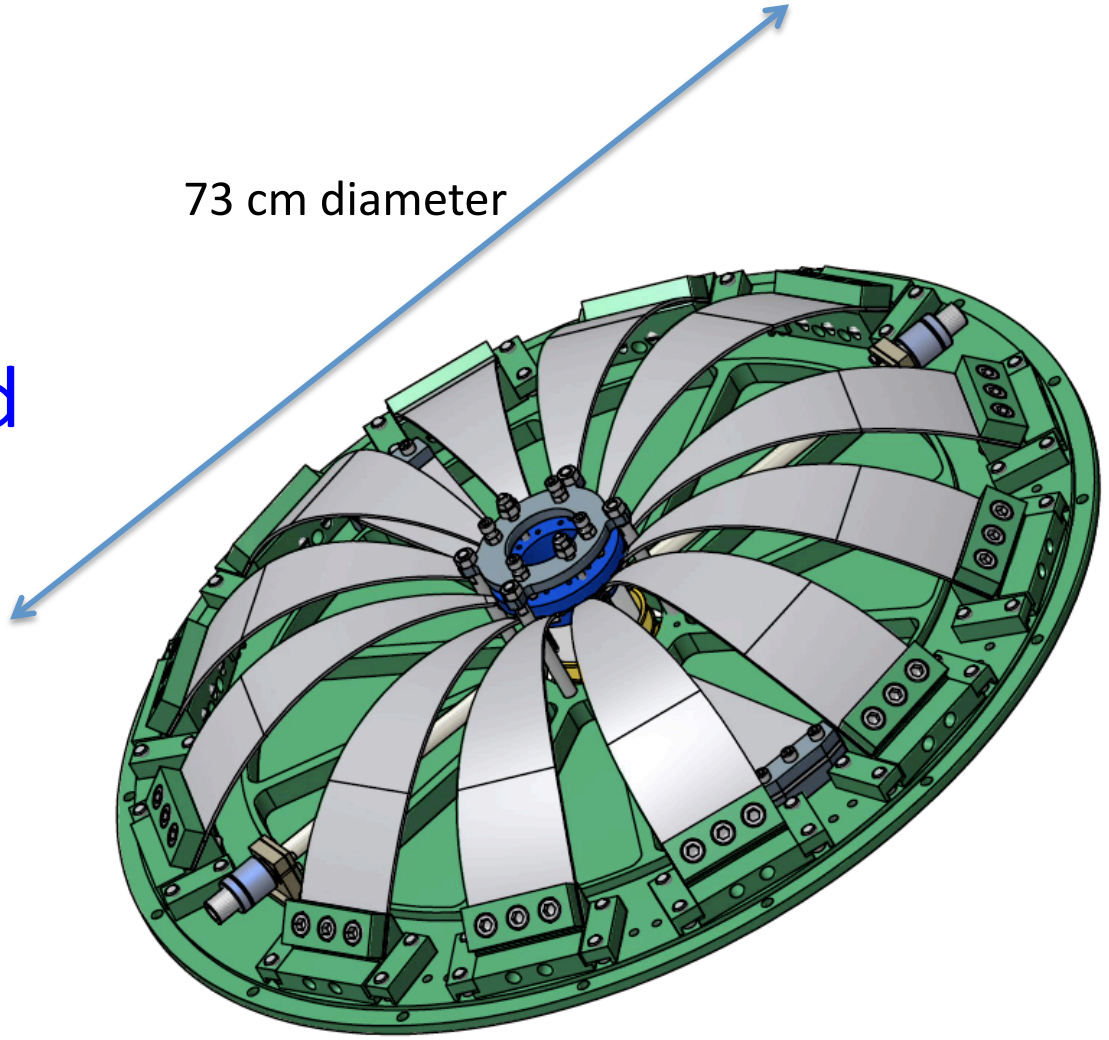
Filter zero

Standard filter



Standard modular filter

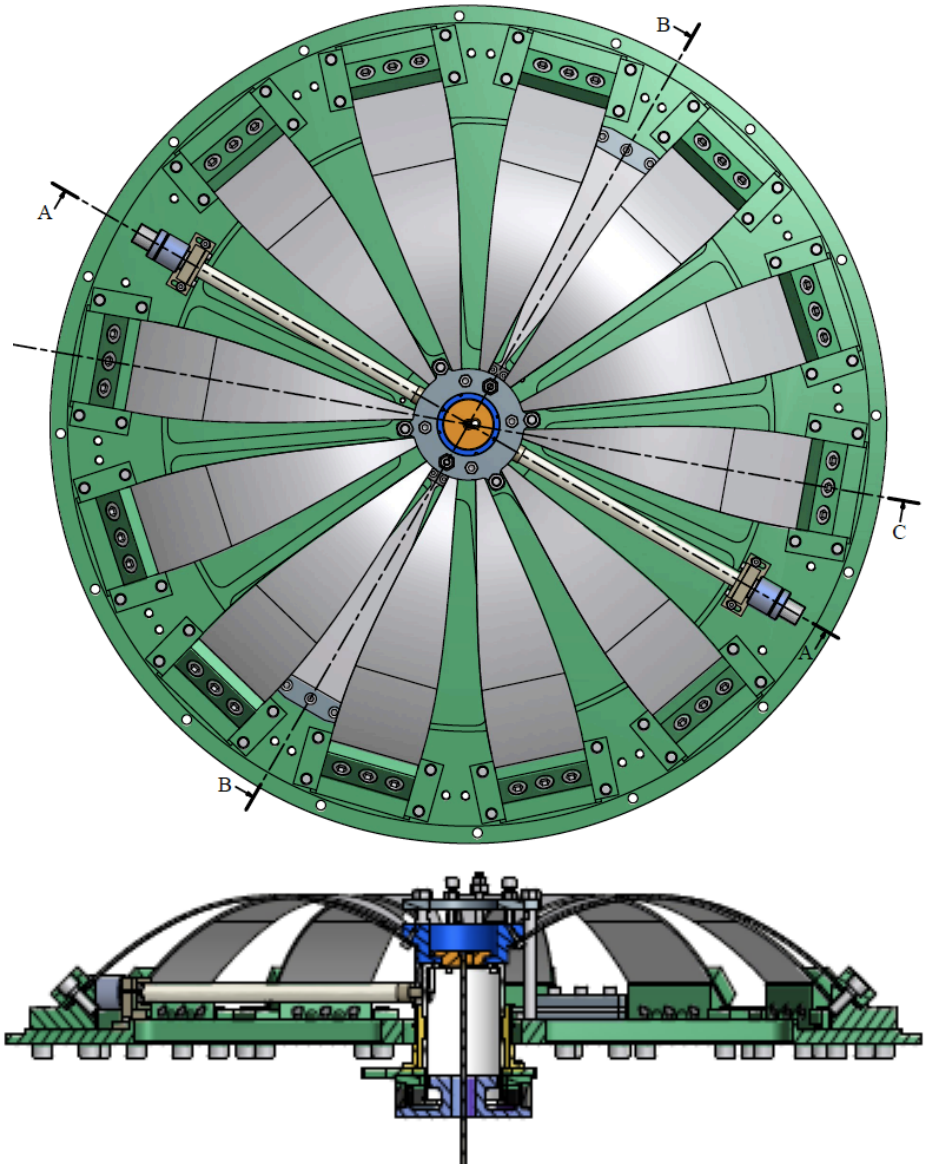
- Up to twelve blades
- 100 to 600 kg load
- Change number and size of blades to match required load



85 kg mass

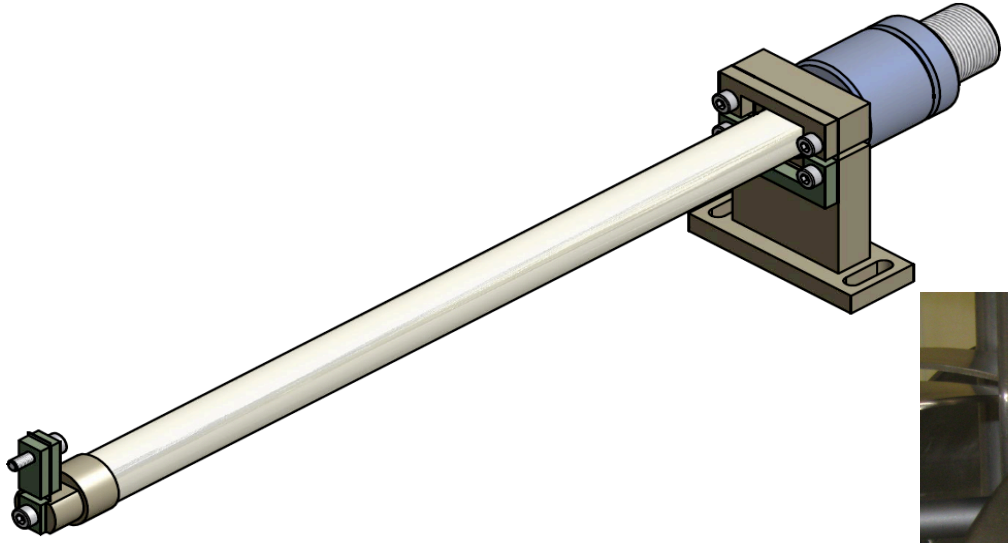
Standard filter performance

- Magic wands,
  - Peak attenuation 90 dB
- Passive frequency tuning by changing radial compression
- LVDT/Actuator for frequency tuning

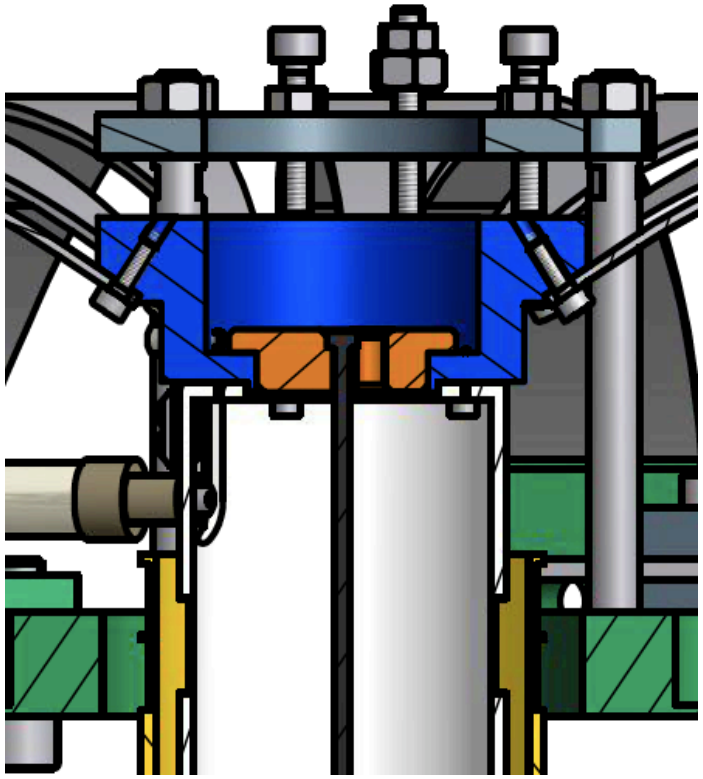


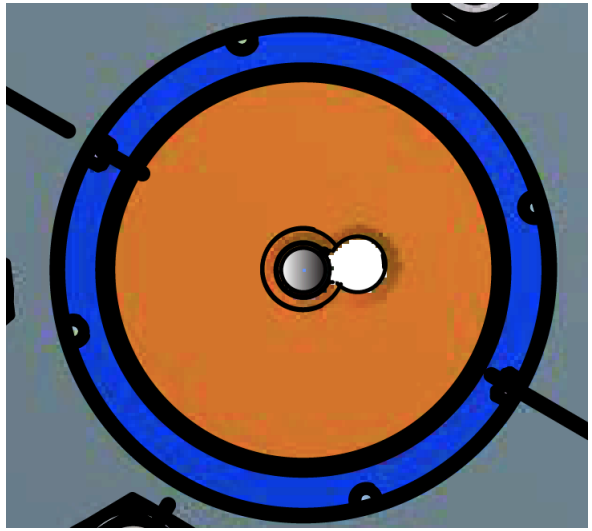
Magic wands

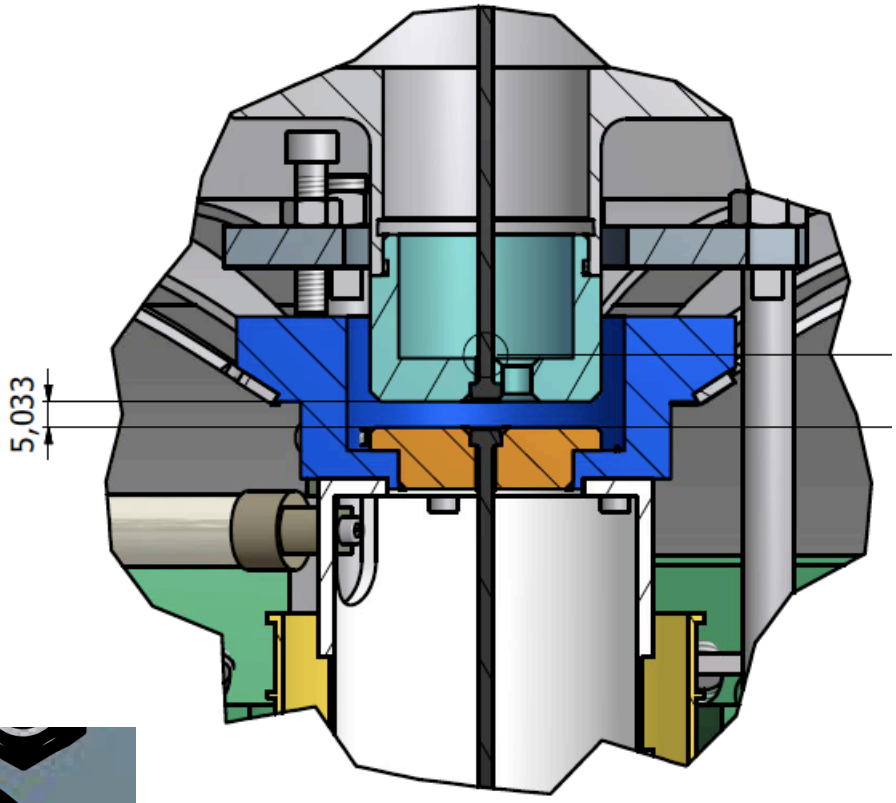
- Compensate center of percussion limitations



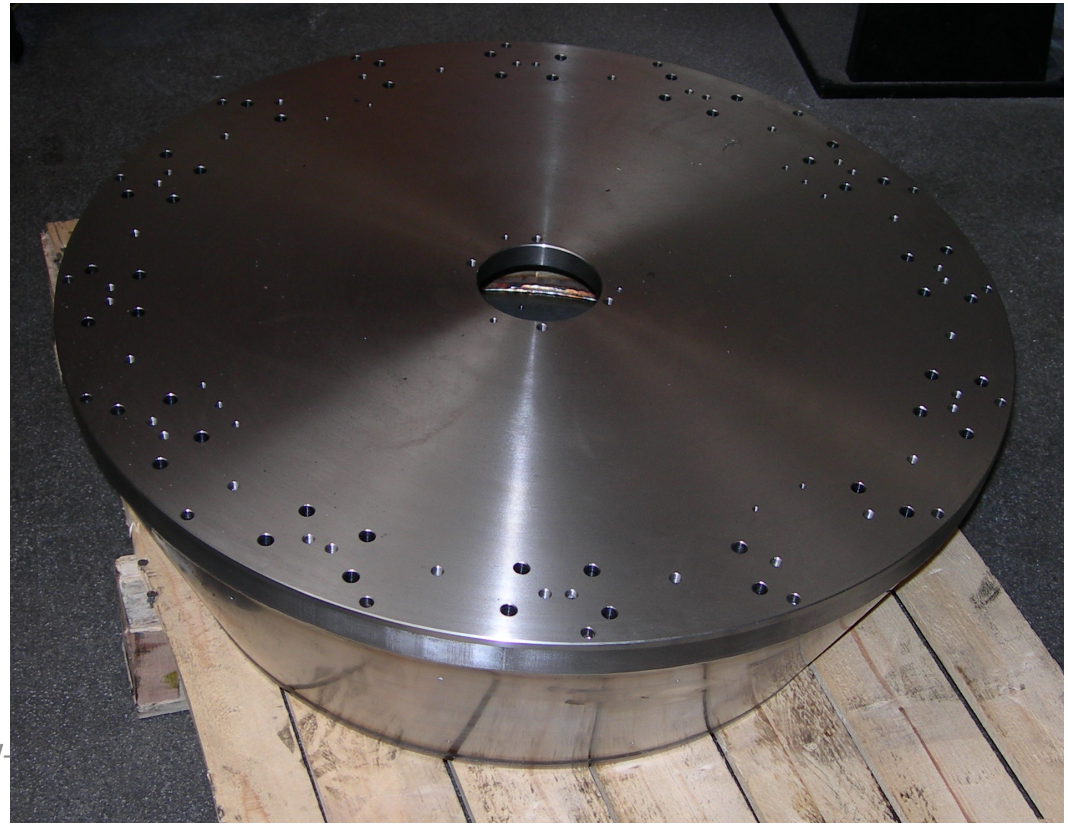
Rapid suspension wire hooking





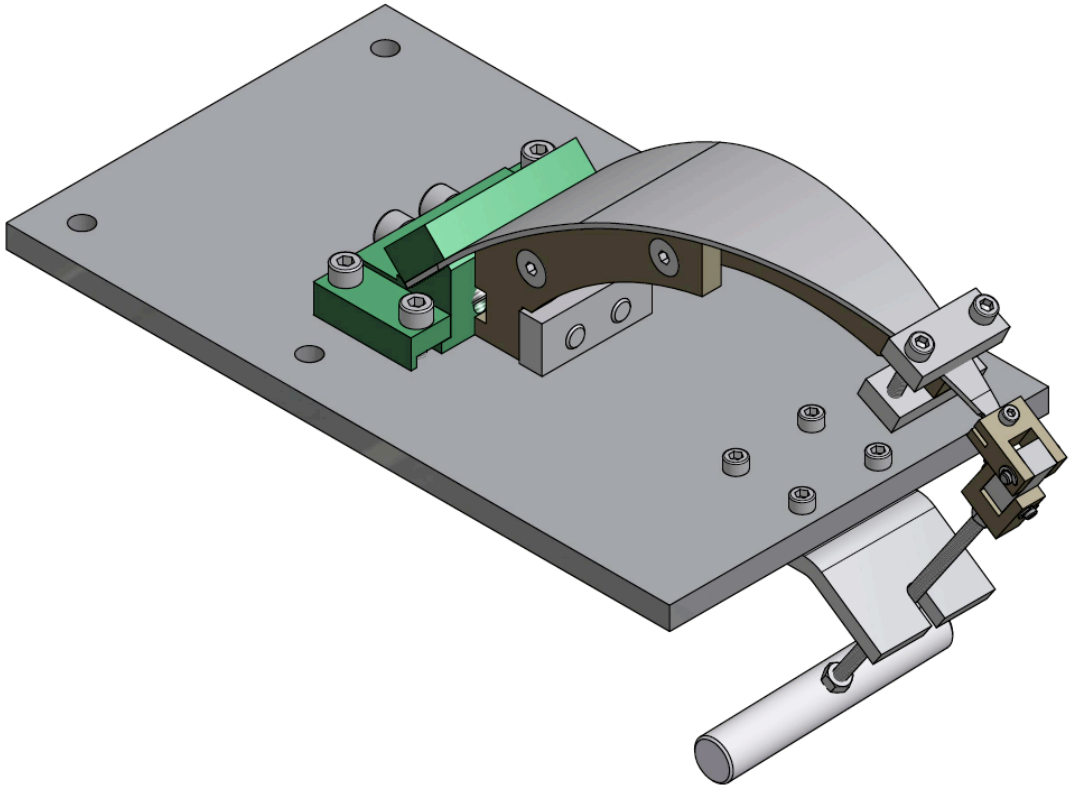


Standard filter machining

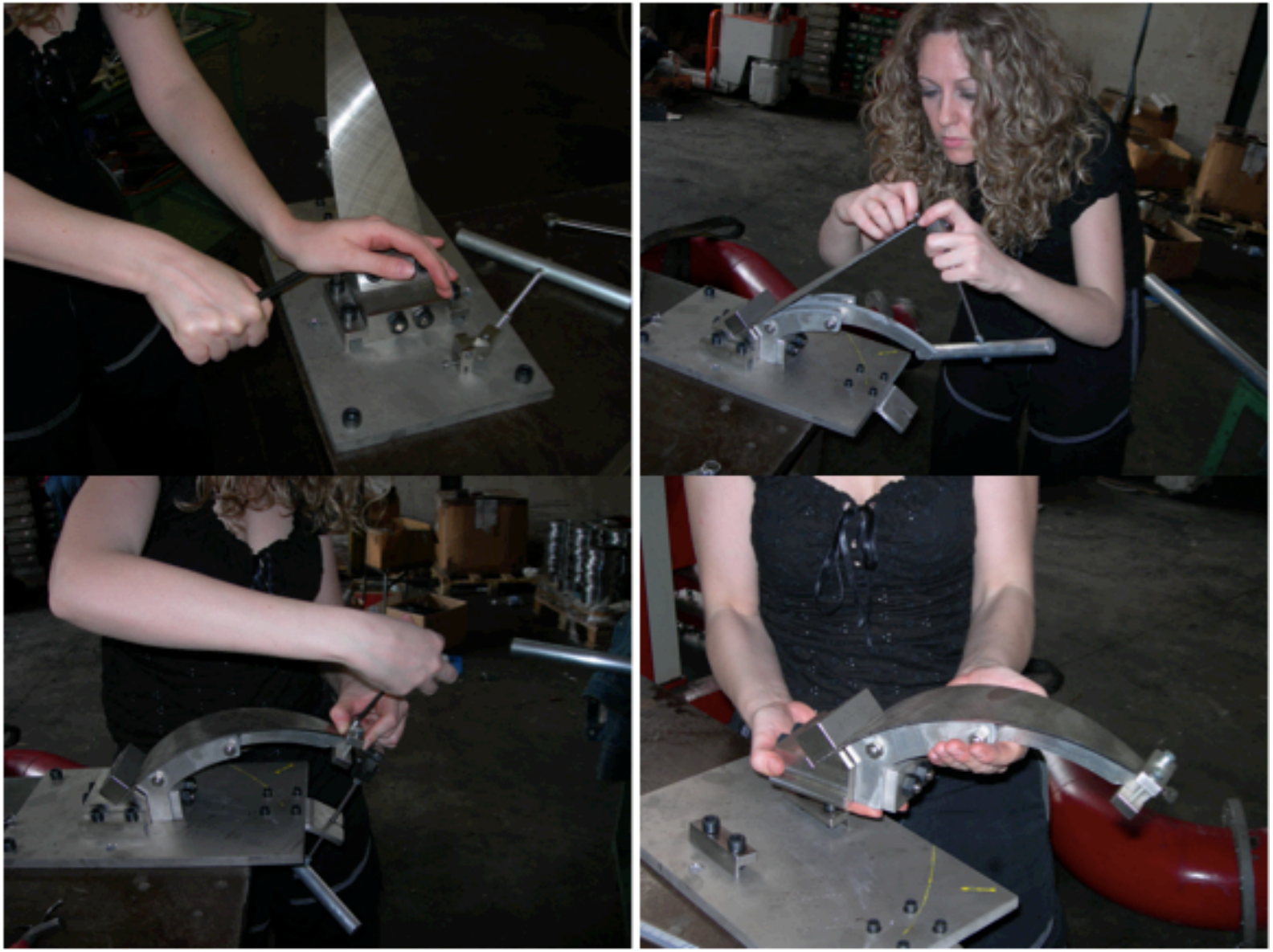


Modular-rapid blade assembly

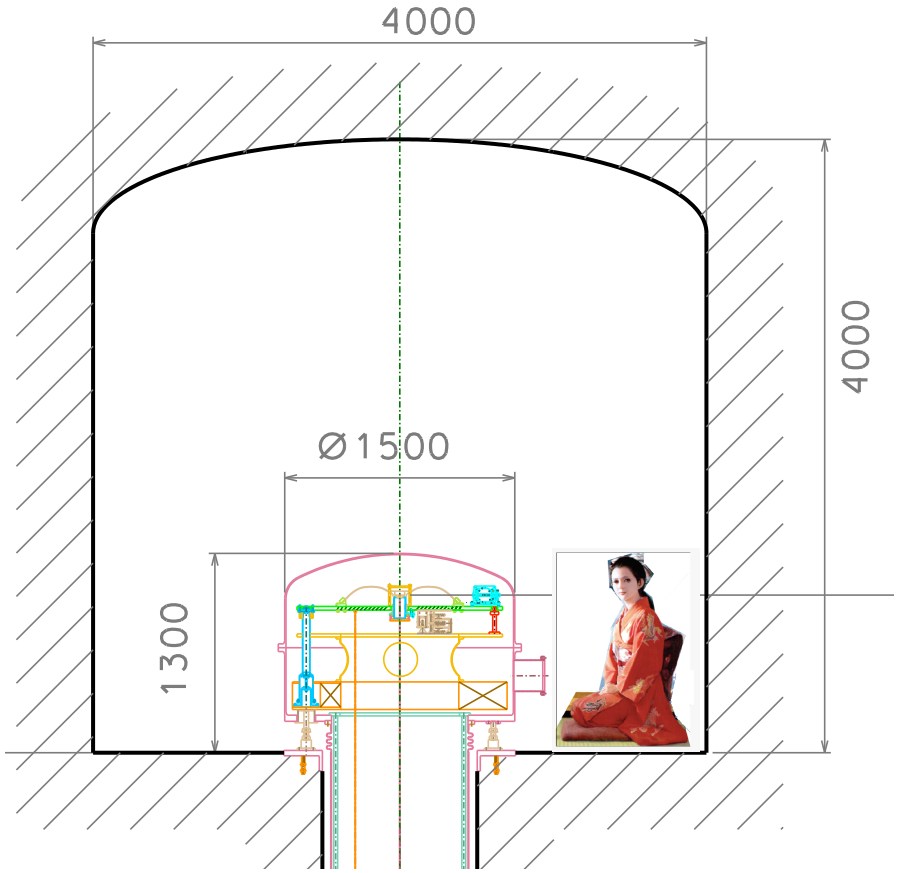
- Specialized tooling



Easy to assemble

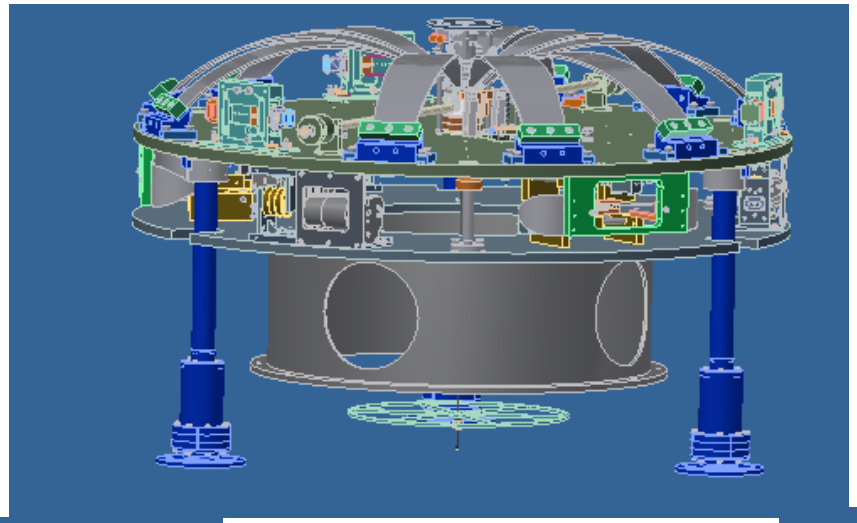


The filter zero and IP table

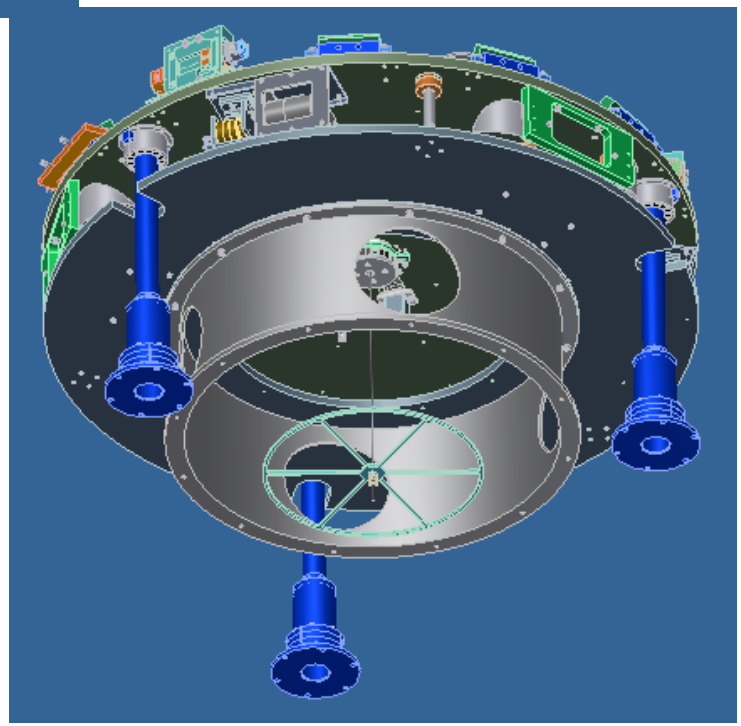


- footed on solid rock
- Inverted Pendulum table with short legs
- Large GAS filter

Filter zero



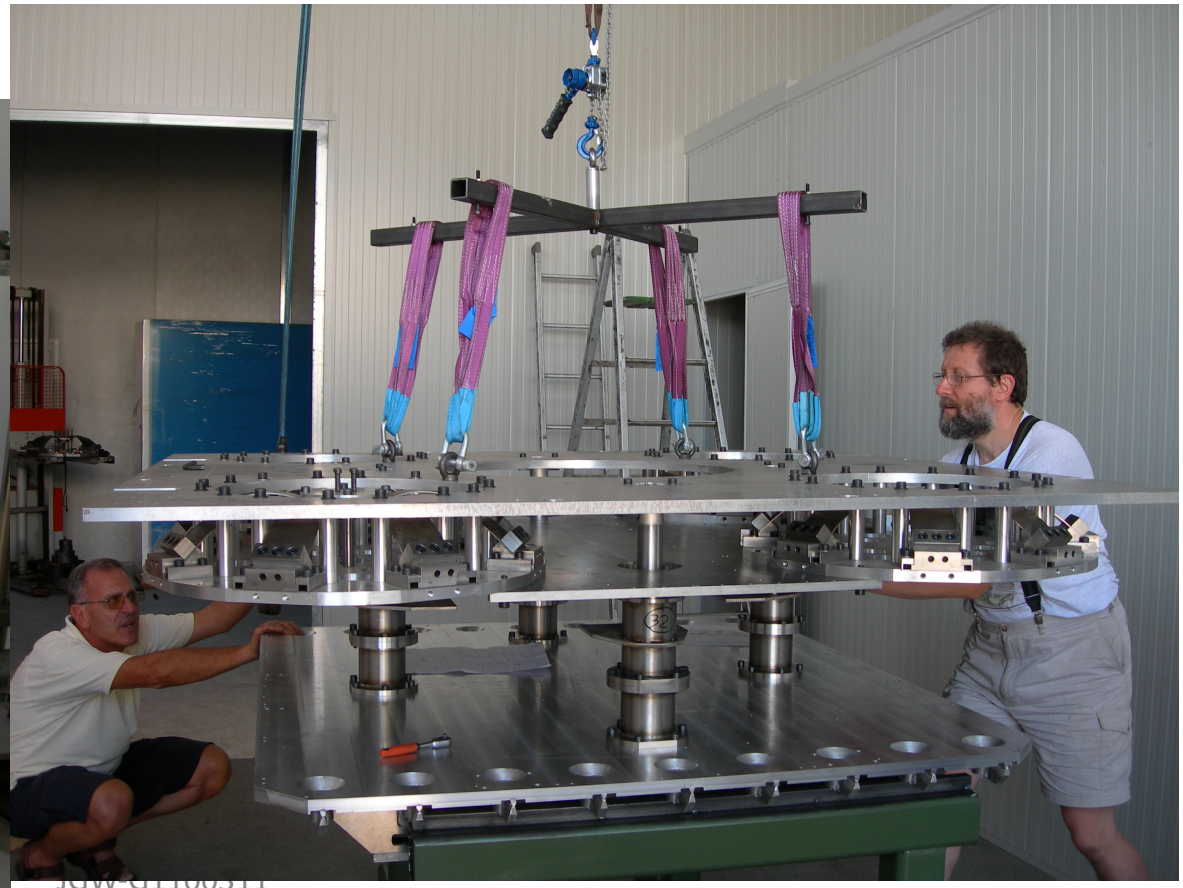
T1100306-v1
Top filter
description



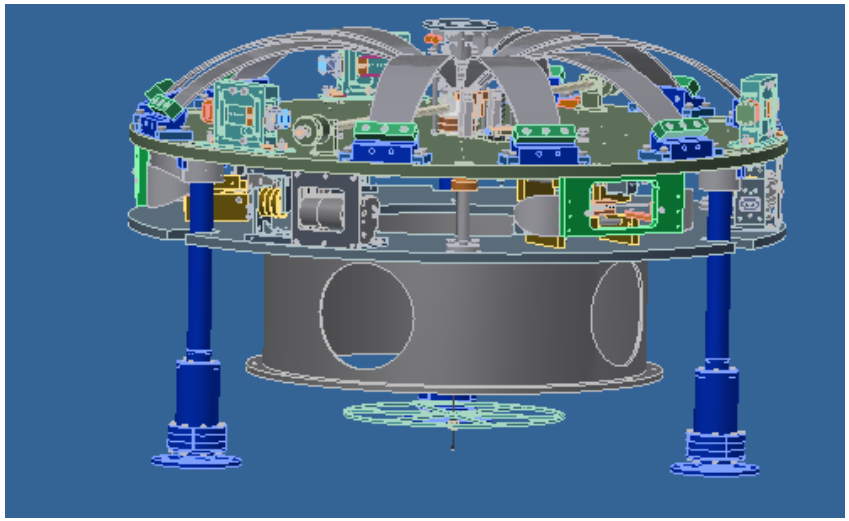
Inverted pendulum

- Same as HAM SAS and AEI SAS

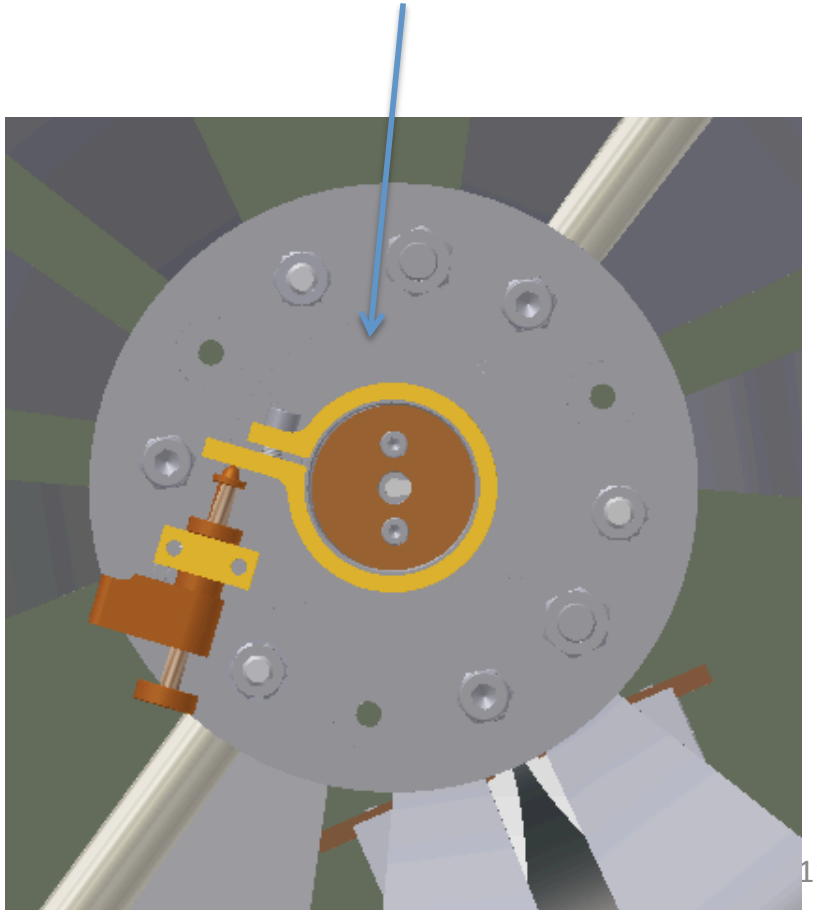
Please read LCGT-T1000253:
http://gw.icrr.u-tokyo.ac.jp/cgi-bin/private/DocDB/ShowDocument?docid=253



Filter zero functionalities

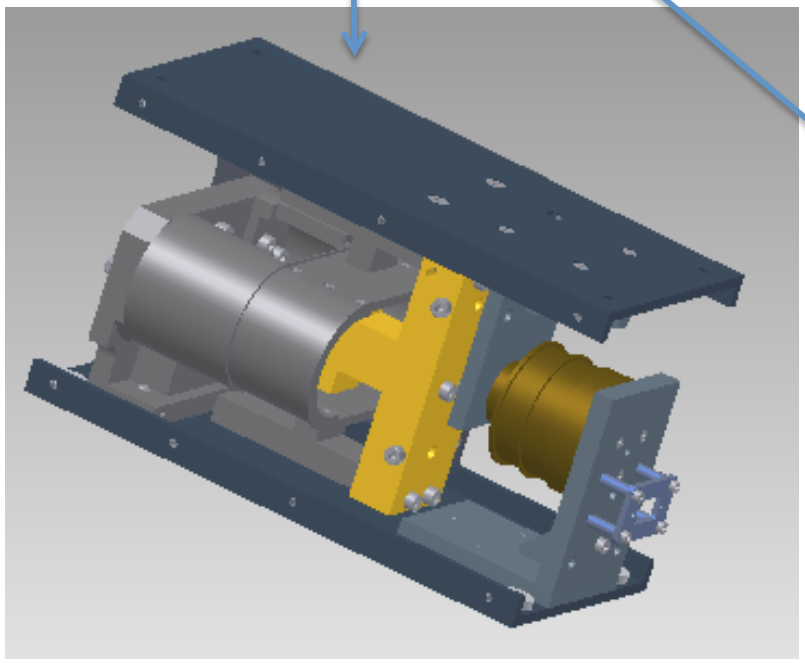


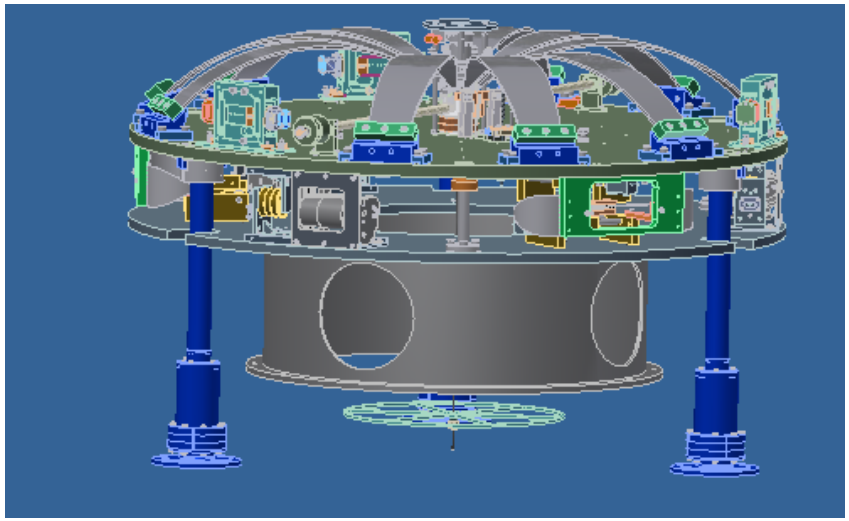
Tuneable load
Rotatable suspension wire

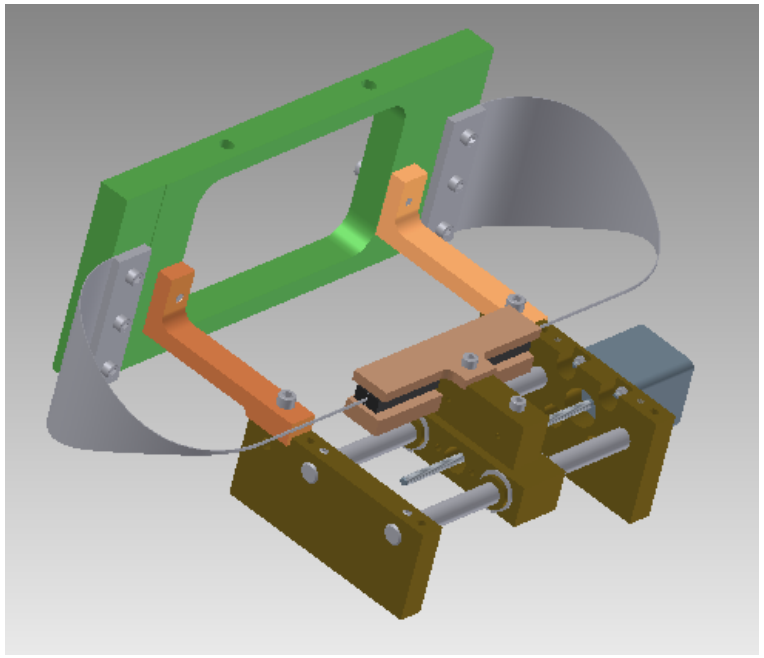


Filter zero functionalities

Dynamic and static positioning



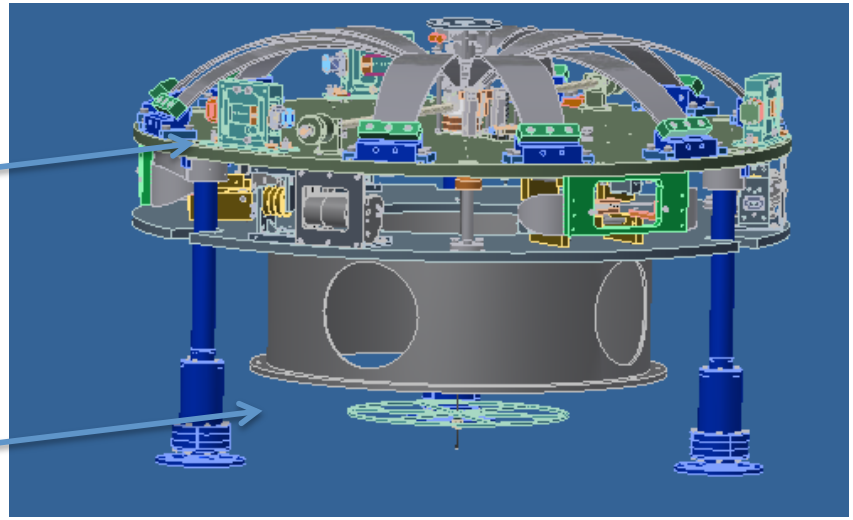




Filter zero functionalities

Inertial control

Spider for cabling



Conclusions

- The first prototype of standard filter will be delivered on Monday and assembled
- Next week Takanori, Ryutaro and I will test it in NIKHEF, Netherlands
- Next bring it here

- Design of the top filter nearing completion
- Prototyping will follow

Drawing set
As of today
D1100307-v2