



Features and status of **Advanced Virgo**

Jean-Yves Vinet (spokesperson)
For the Virgo Collaboration

Kashiwa, Feb. 2014



Infrastructure inherited From Virgo

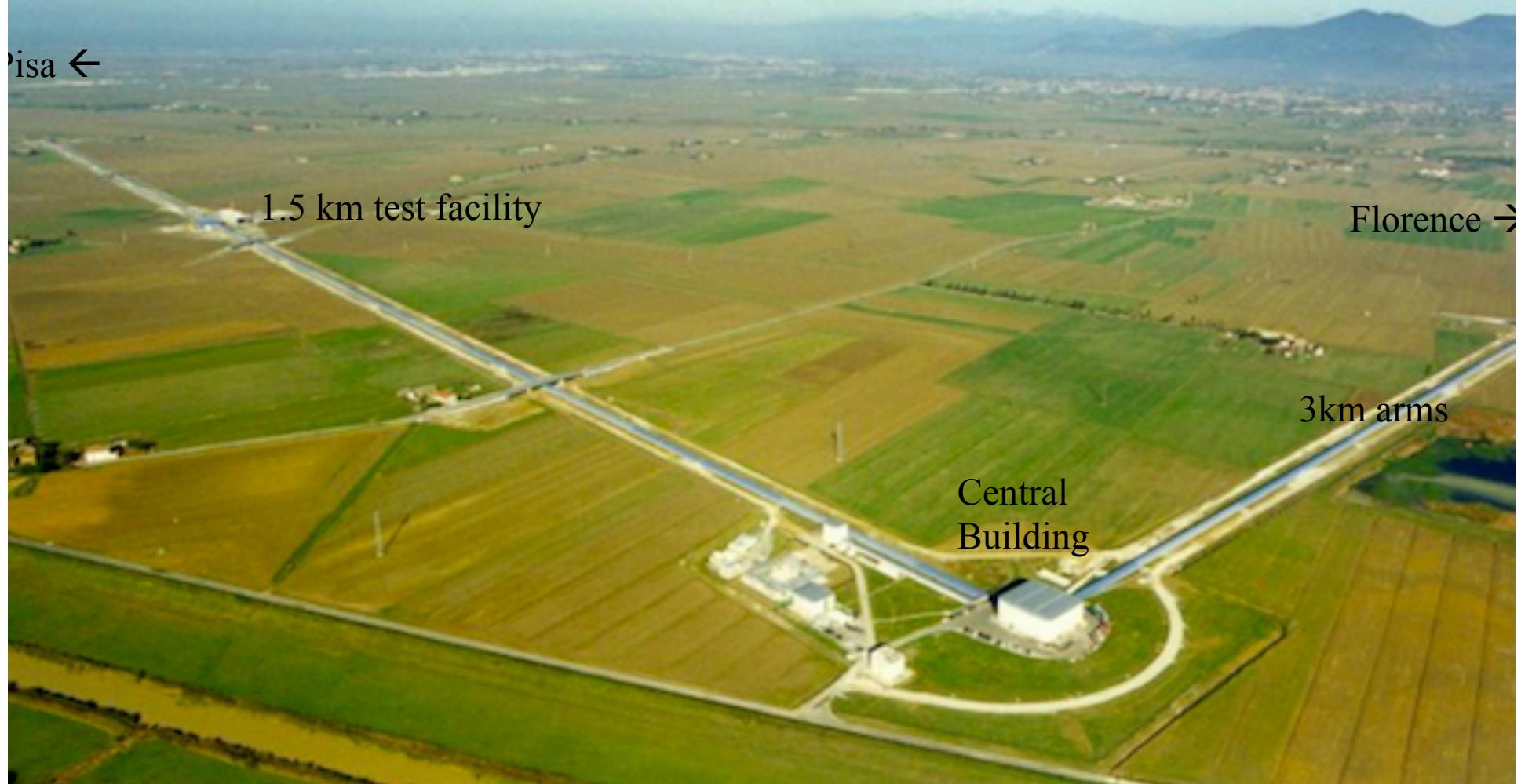
Pisa ←

1.5 km test facility

Florence →

3km arms

Central
Building





The Virgo Collaboration : 18 European teams

EGO Council (CNRS, INFN, NIKHEF)

NIKHEF, Amsterdam
Radboud University , Nijmegen
The NETHERLANDS

RMKI,
Academy of sciences
Budapest
HUNGARY

EGO Site
Cascina

ITALY:

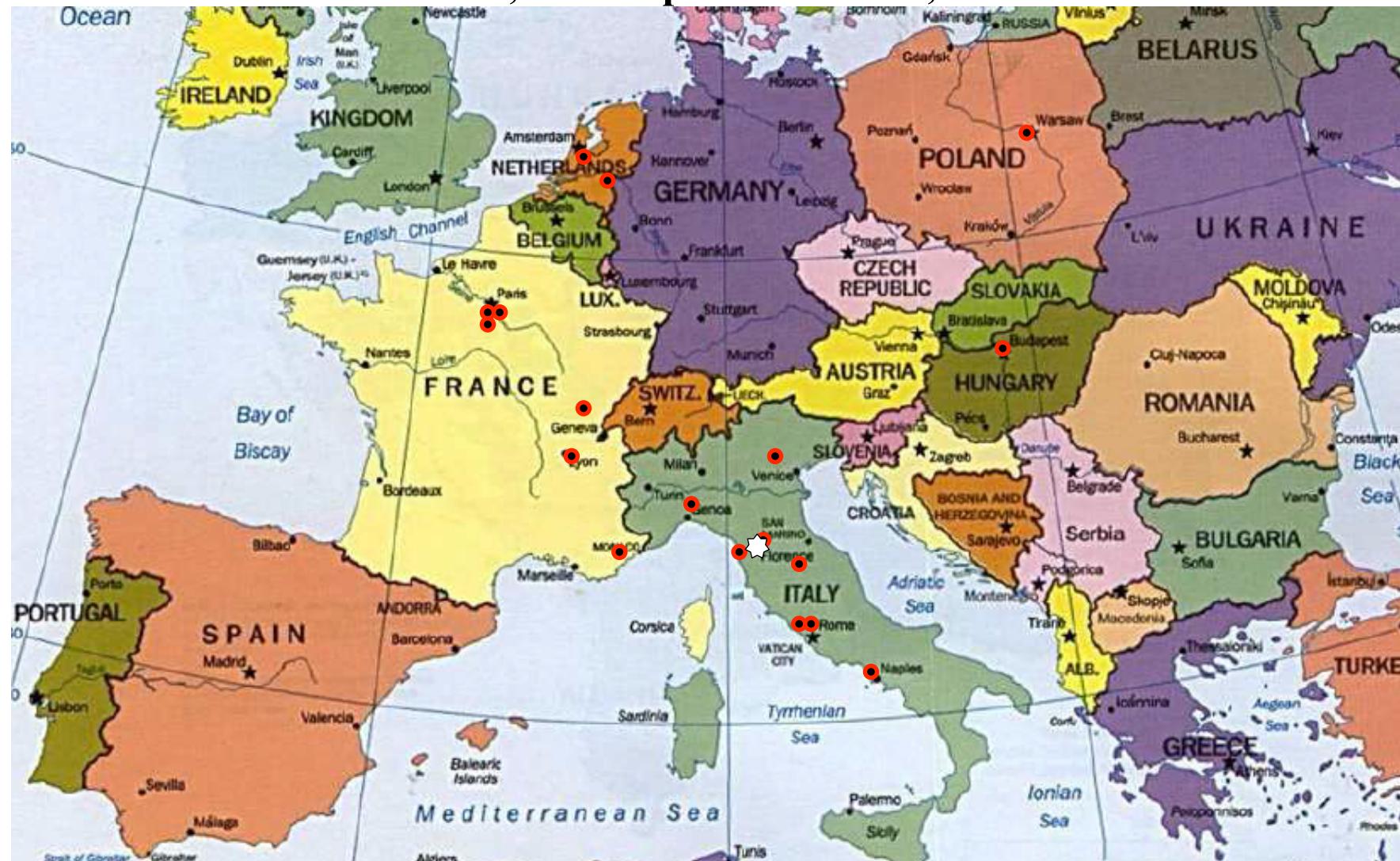
INFN + Universities of
Firenze-Urbino
Genova
Napoli
Perugia
Roma La Sapienza
Roma Tor Vergata
Pisa
Padova-Trento

Institute of Mathematics
Polish Academy of Sciences
Warsaw
POLAND

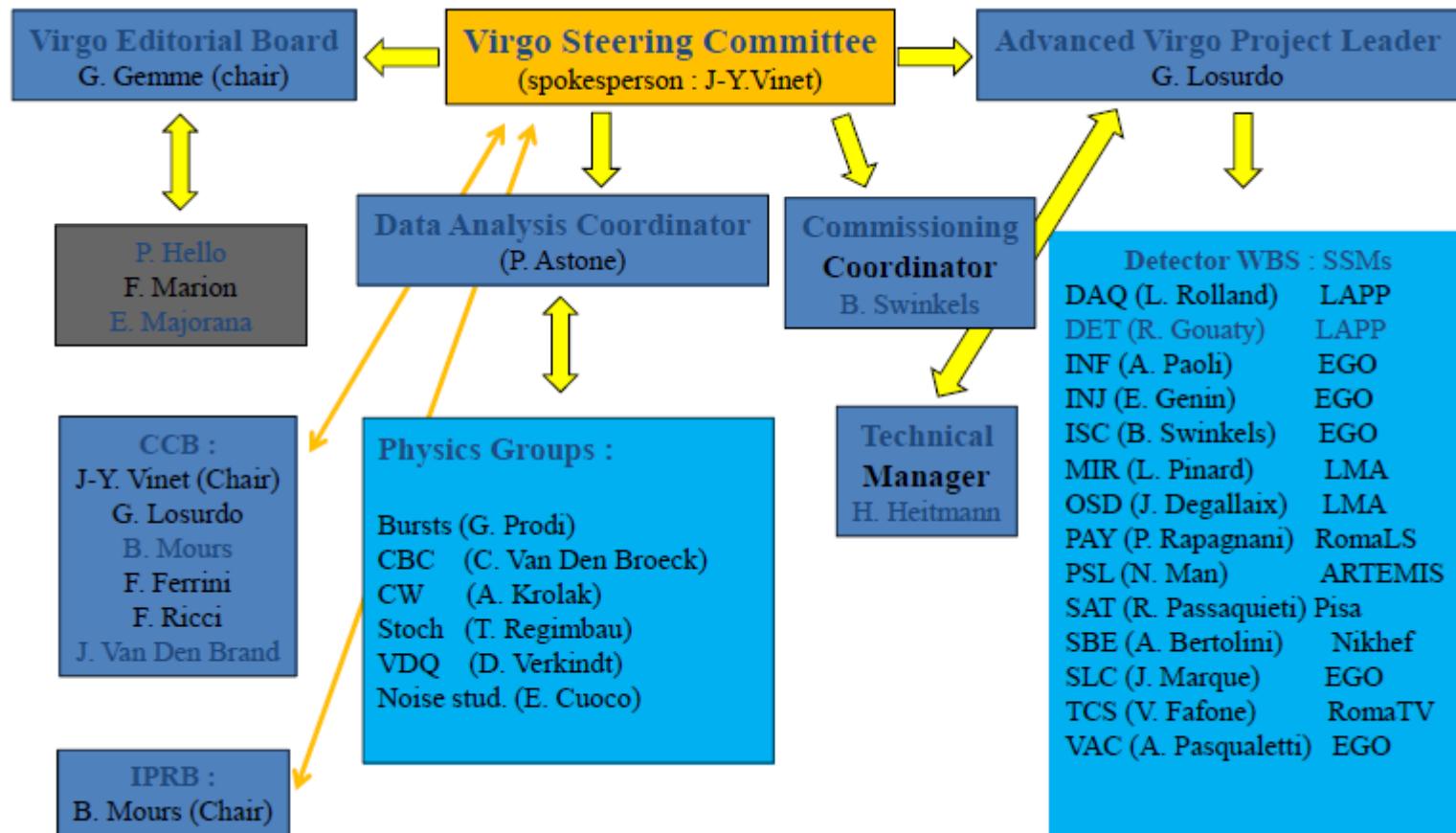
FRANCE :

Laboratoire de l'Accélérateur Linéaire (U. Paris-Sud+CNRS)
Laboratoire d'Annecy de Physique des Particules (CNRS)
Astroparticules et Cosmologie (U. Paris 7+CNRS)
Laboratoire des Matériaux Avancés (Lyon-CNRS)
Laboratoire Kastler-Brossel (ENS – U. Paris 6 - CNRS)
Observatoire de la Côte d'Azur (CNRS, Nice)

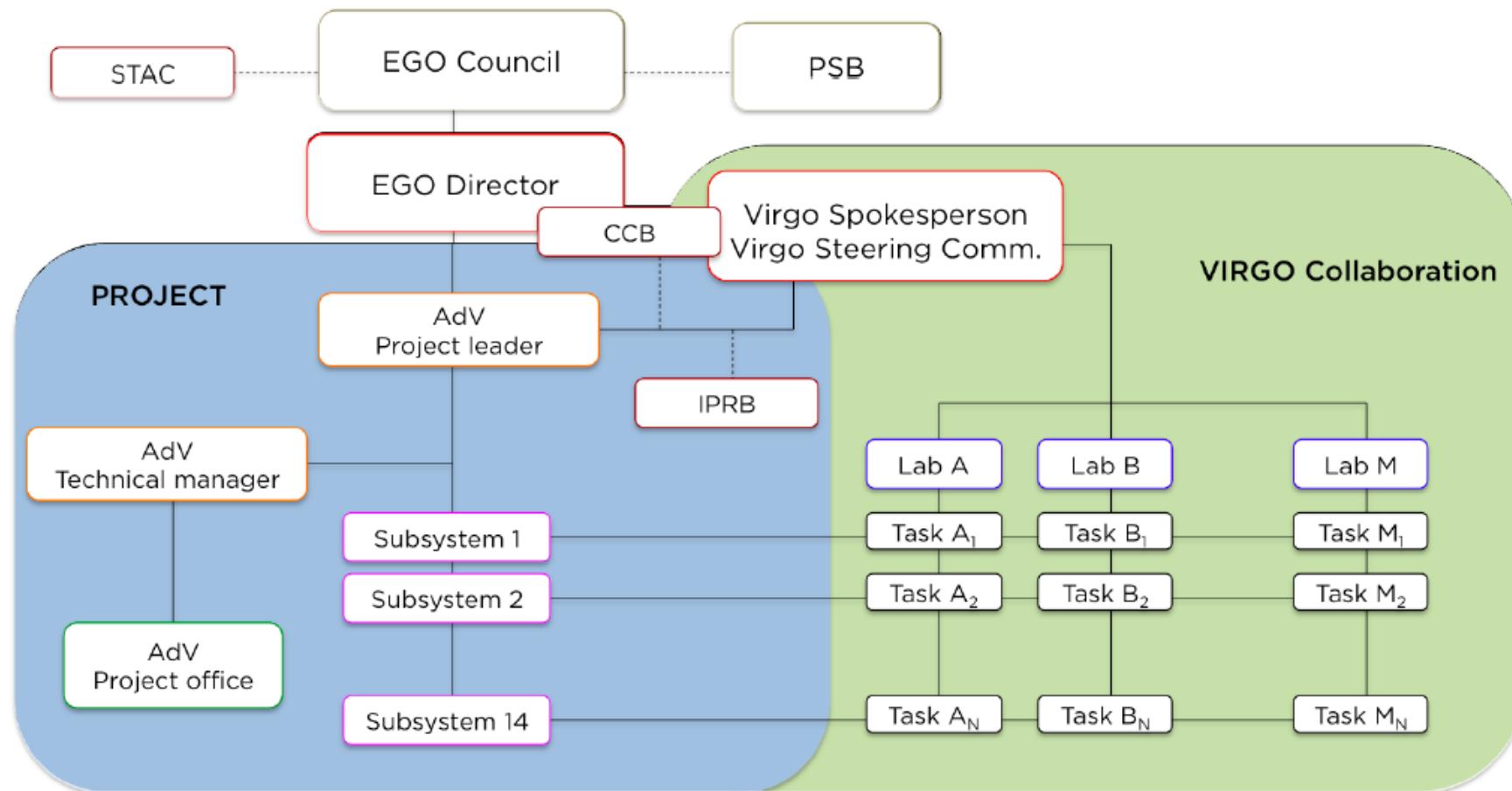
~200 members, 5 European countries, 3 institutions



The Virgo flowchart

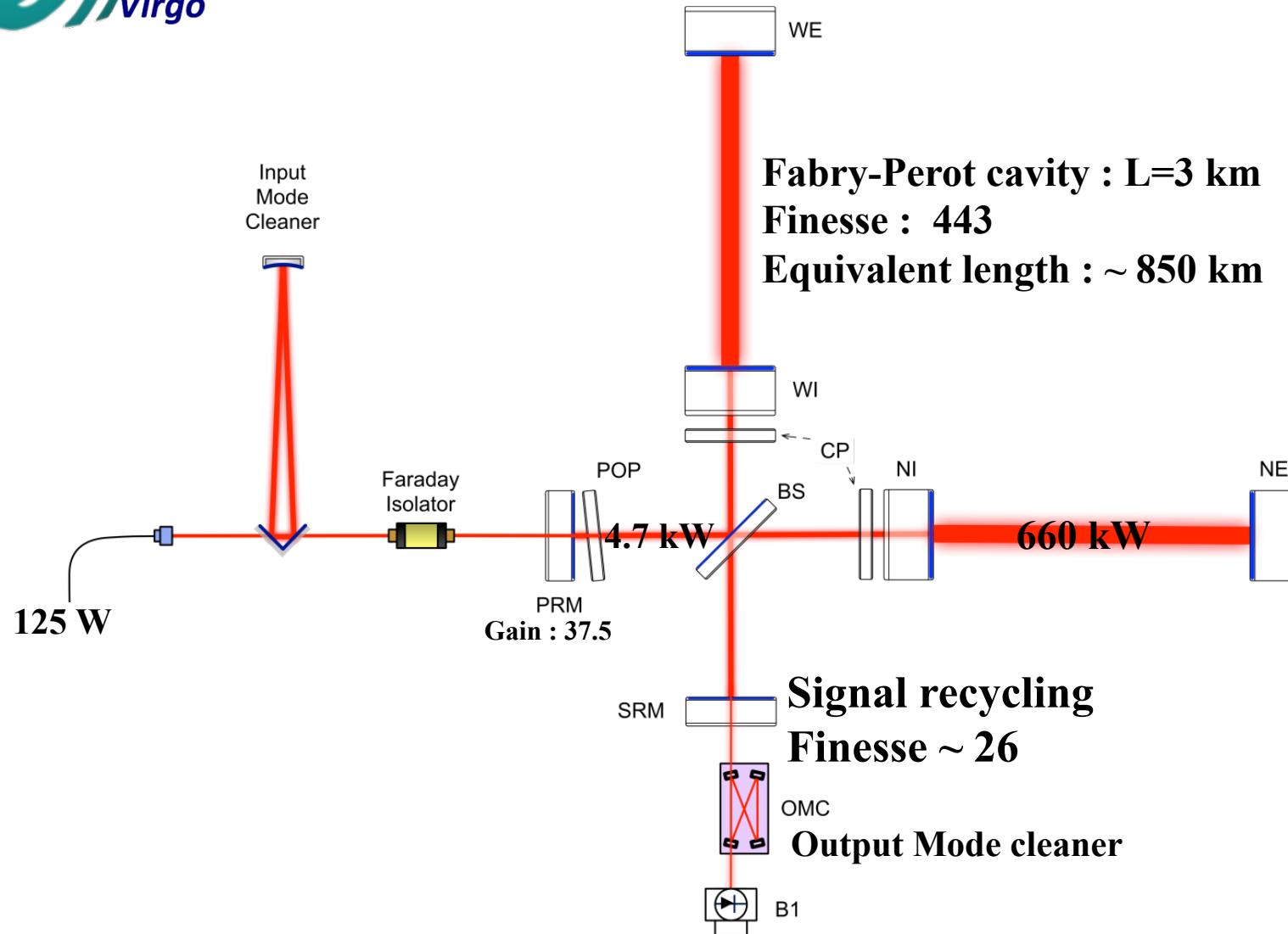


The Advanced Virgo management

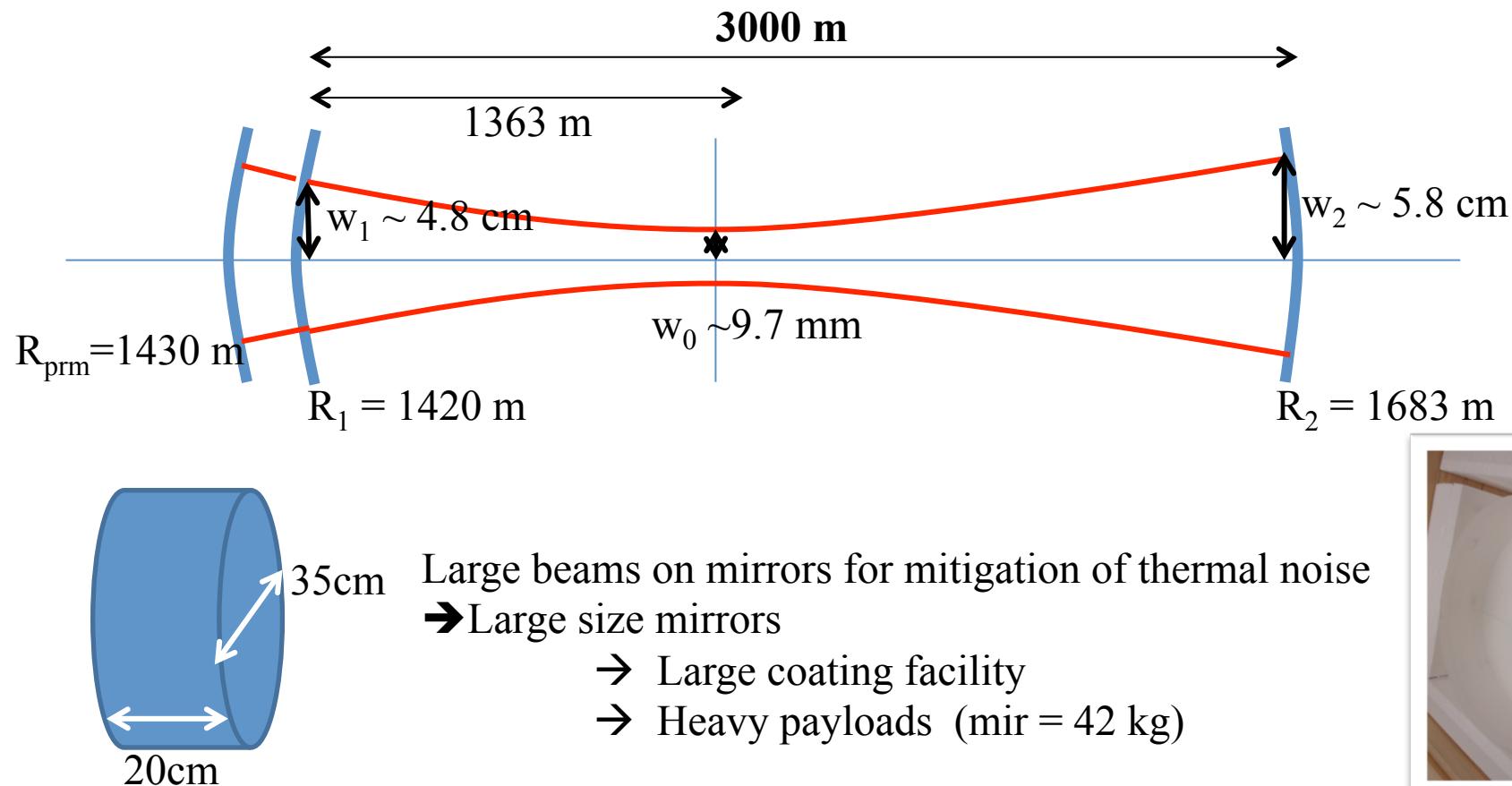




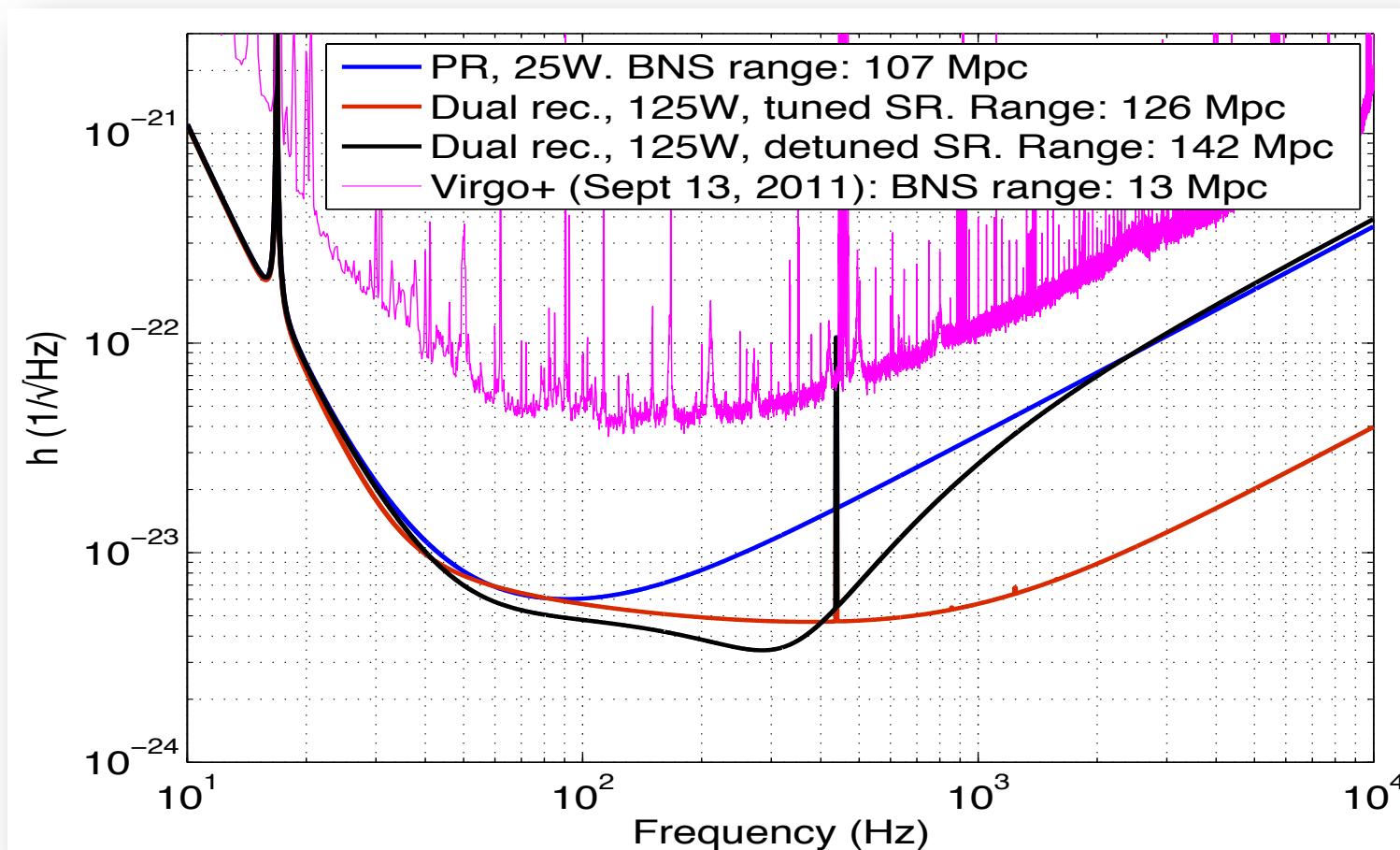
« Advanced Virgo » : optical layout



Fabry-Perot cavities



Target spectral sensitivity : one o.m. with respect to Virgo+





**Large coating + metrology
facility
For Virgo/LIGO
Lyon (France)**

Metrology

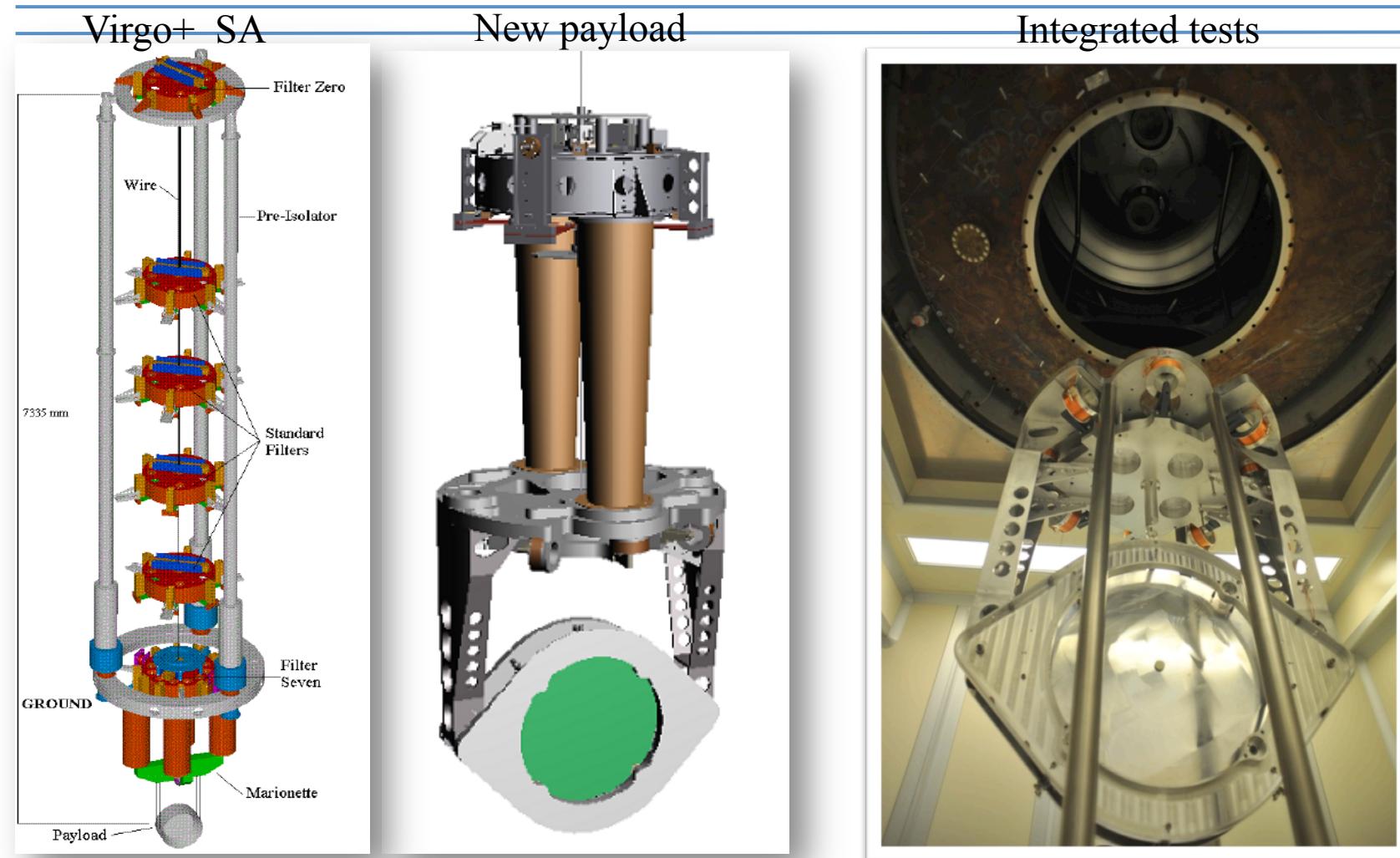


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Superattenuator : tests ongoing

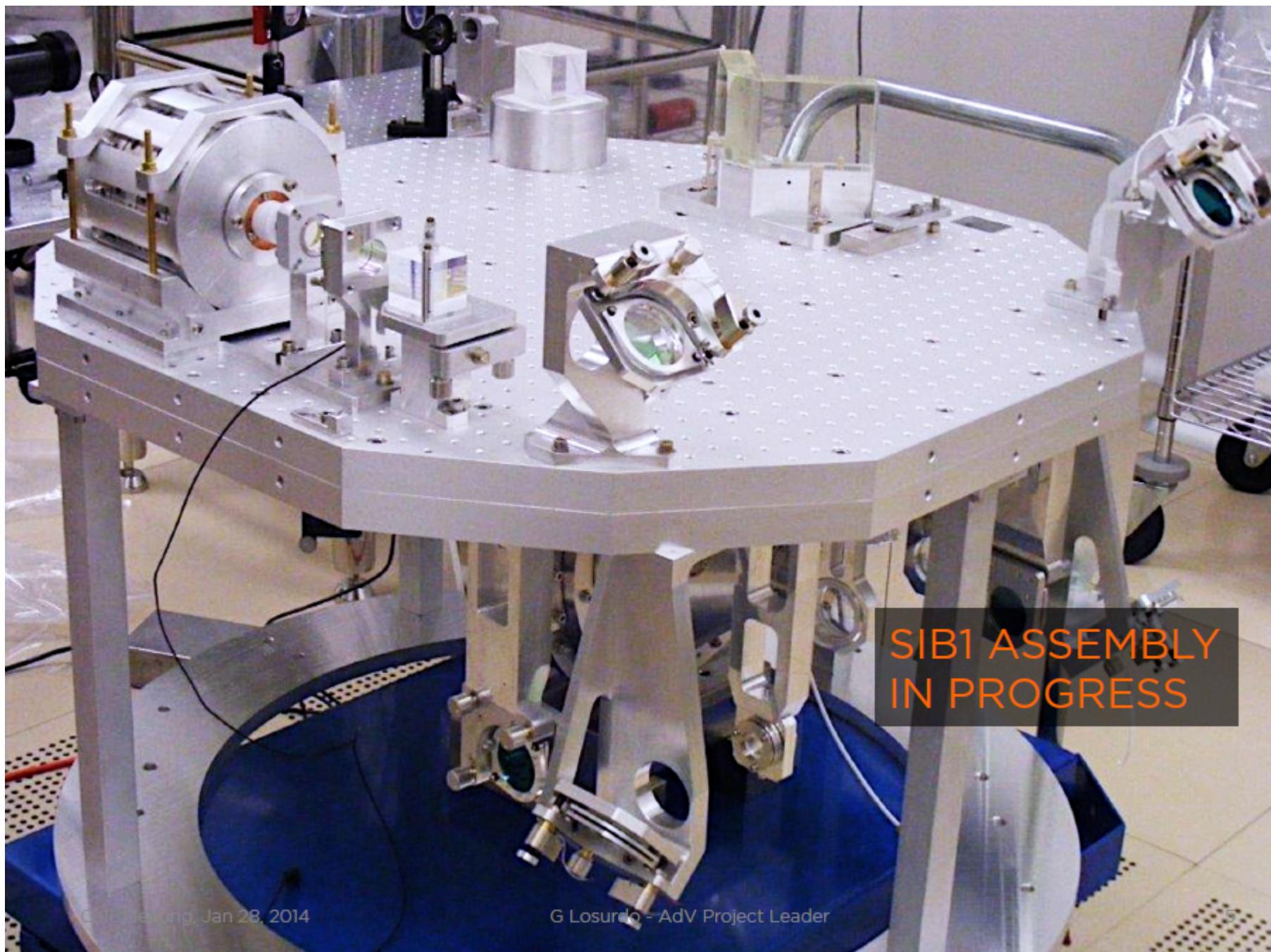


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Mitigation of stray light noise → suspended benches





SIB1 ASSEMBLY
IN PROGRESS

Coll. Bealong, Jan 28, 2014

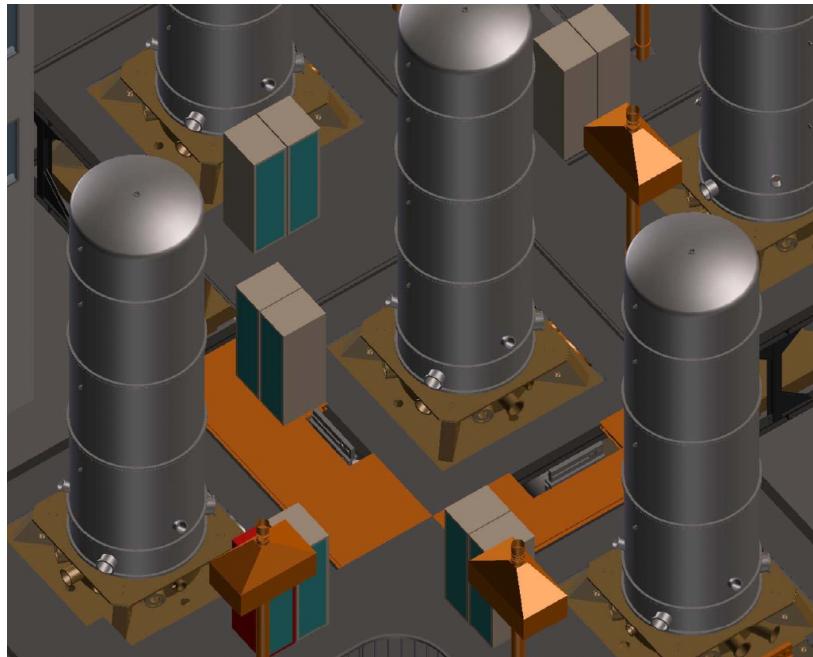
G Losurdo - AdV Project Leader

Central building infrastructure installed

Scaffoldings
installed



SA towers & CB design



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All cryotaps produced :

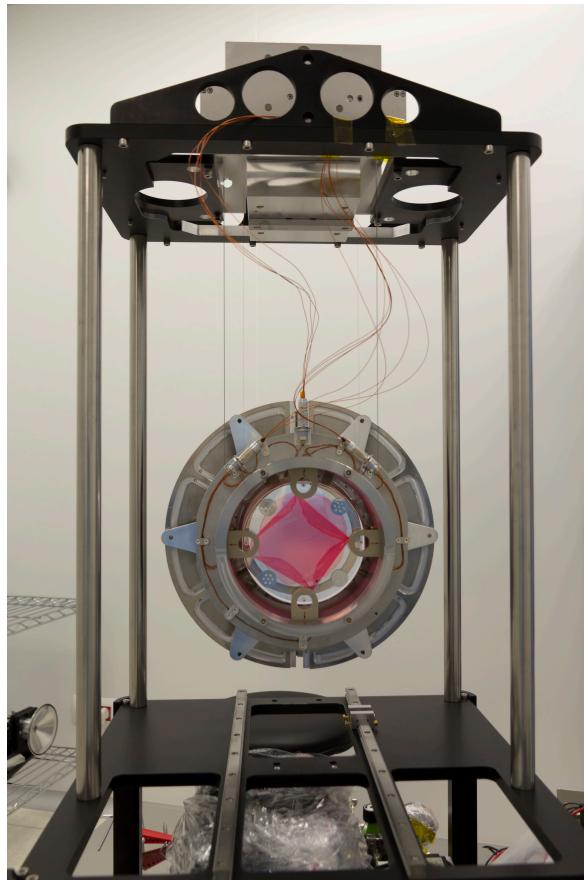
- One on site, one fully tested
- Two more to be tested

Links produced :

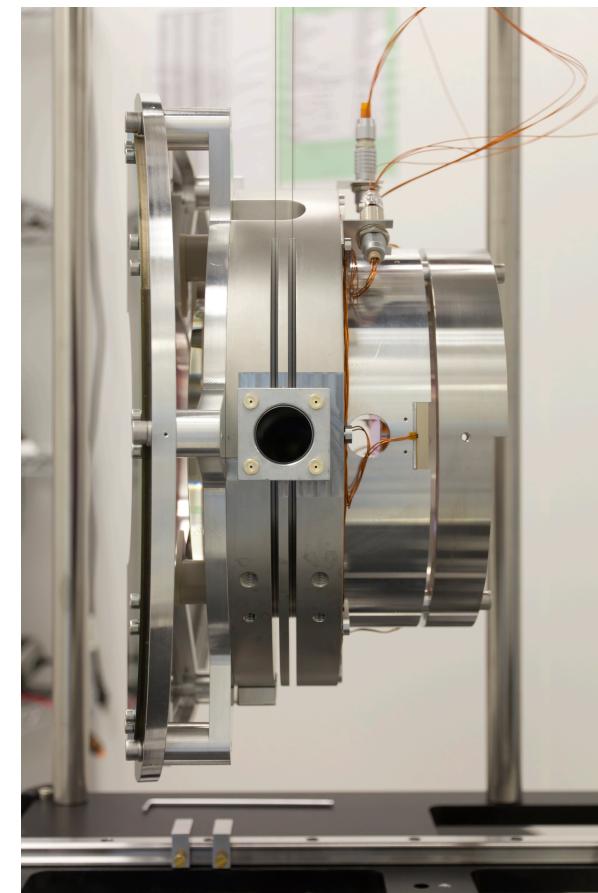
- Tests in progress
- Delivery in weeks



Input Mode cleaner : End Mirror installation

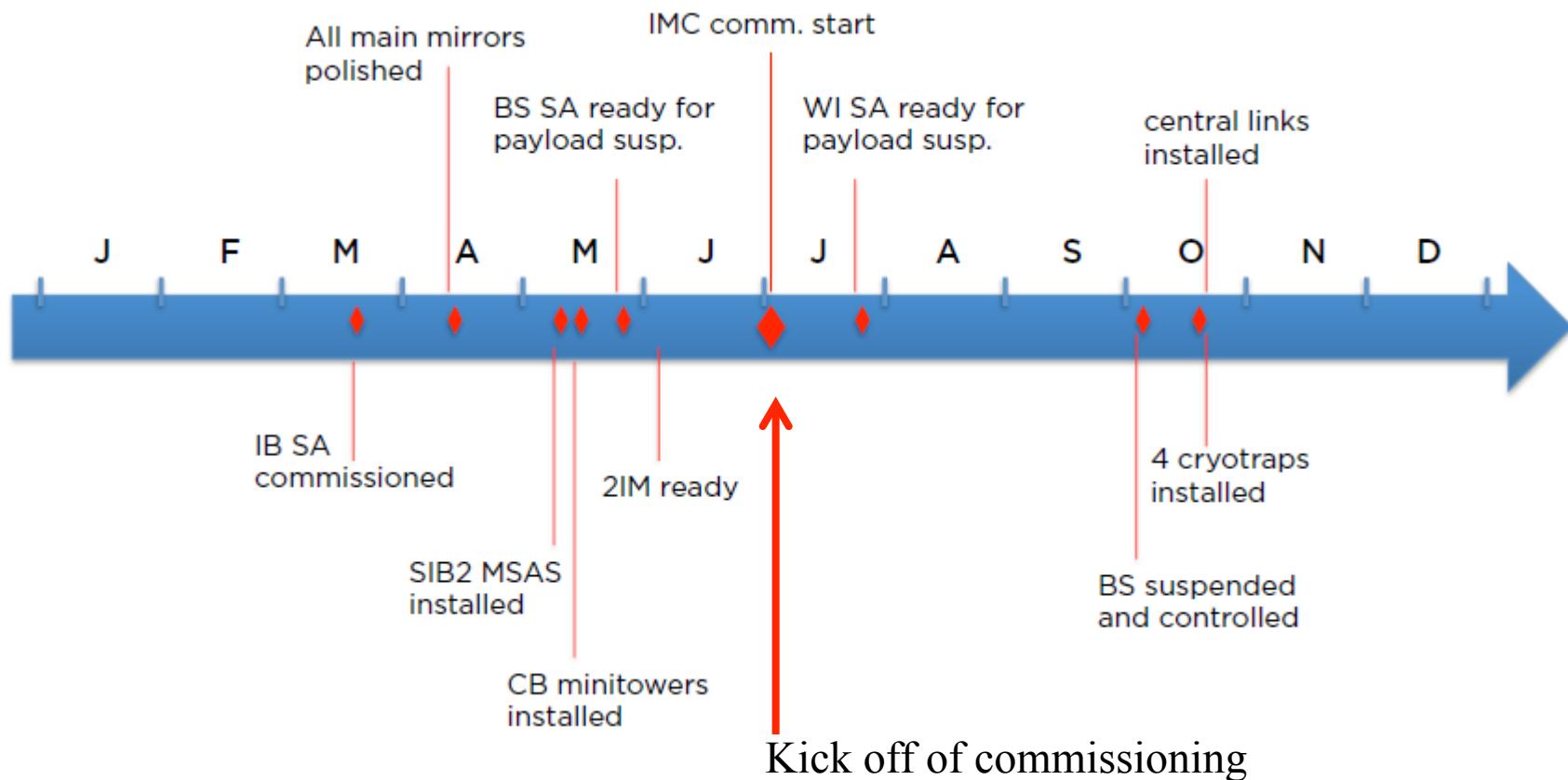


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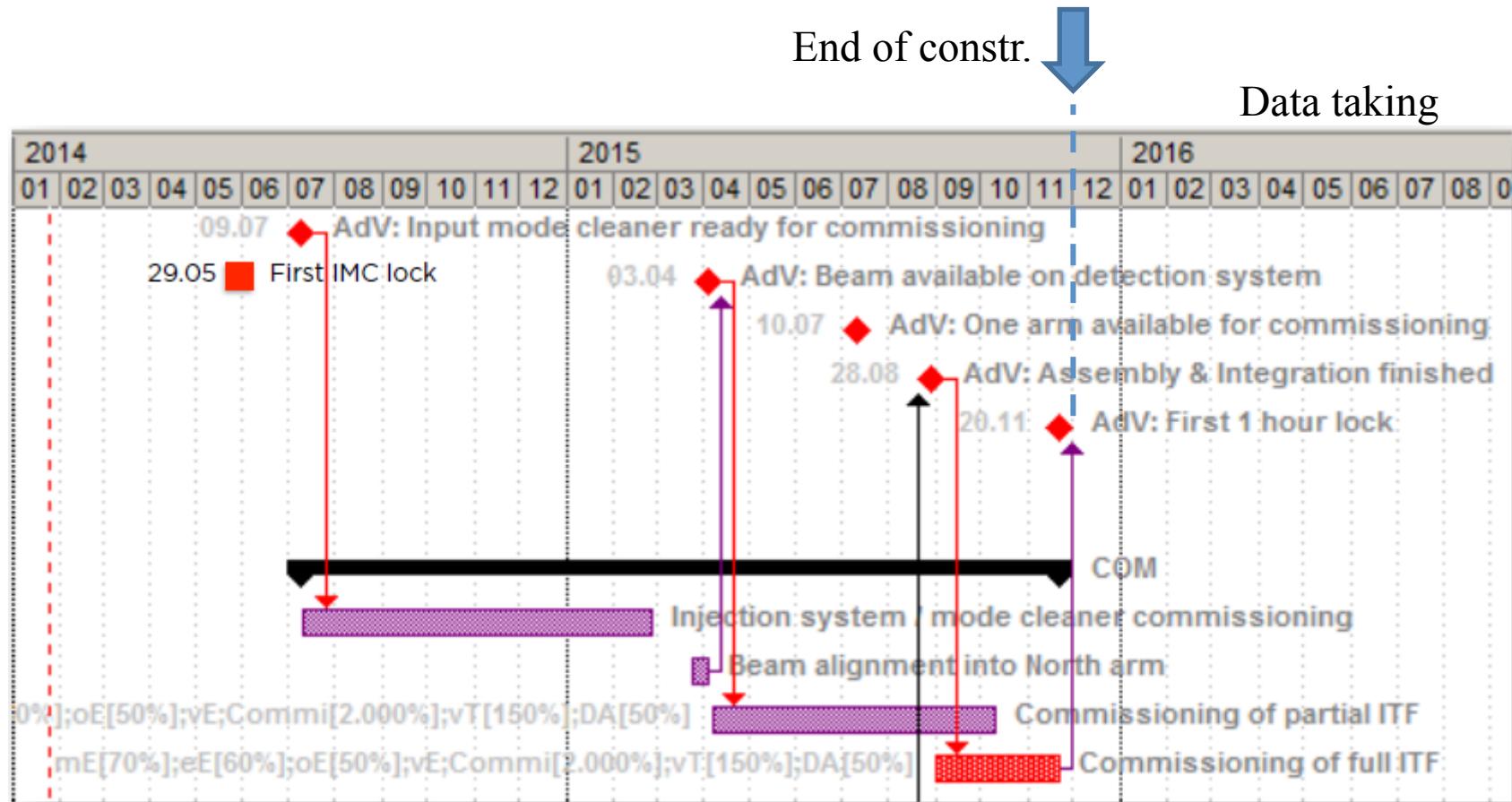


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Some scheduled 2014 events



Planning for next years



Short outlook on the project

**Handle
with care**

- 56% of project cost spent
 - Steady progress towards the start of the IMC commissioning
 - We can start thinking of commissioning organization and involving students in it
-
- Milestones still shifting in several crucial SS
 - Several SS are underspending
 - Installations piling up in 2nd half of 2014



EM follow up program

- Interest of having EM counterparts to GW triggers
- Call for letters of intent to the A&A community (summer 2013)
- Meeting of submitters (~60): Amsterdam August 29th & Chicago september 10th
- Elaboration of a MOU template (Sept → Nov 2013)
 - Coordination*
 - Information sharing*
 - Publication policy*
 - Confidentiality before first 4 detections*
- Call for MOUs (Dec 2013)
- Answers being received up to now
- Sign the MOUs : Spring 2014

Summary/Conclusions

- 1) Optical design : Marginally stable cavities controlled by TCS
- 2) Optical simulations : OK
- 3) Infrastructure renewal : done
- 4) Input optics being installed
- 5) Vacuum system being tested
- 6) Mirrors on the critical path, but metrology installed
- 7) Commissioning begins in April
- 8) End of construction : end 2015
- 9) EM follow up program initiated