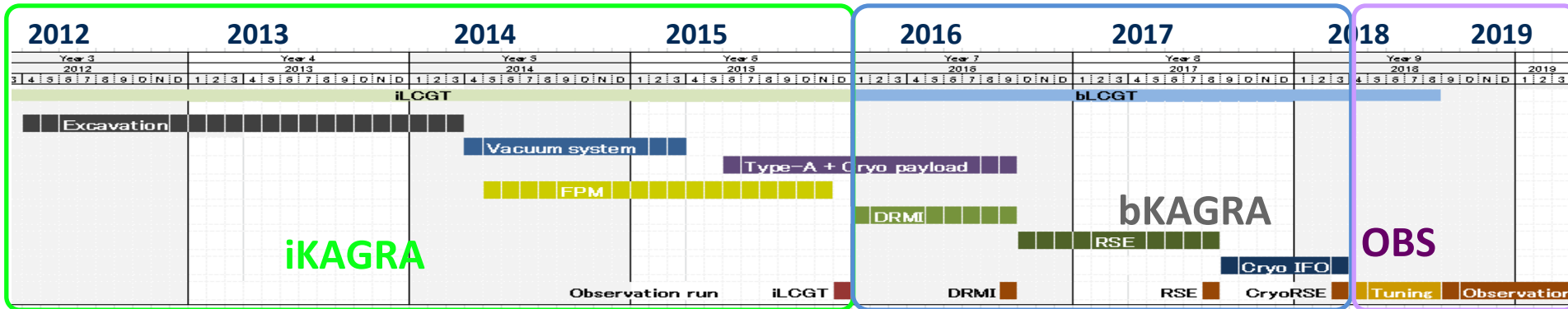


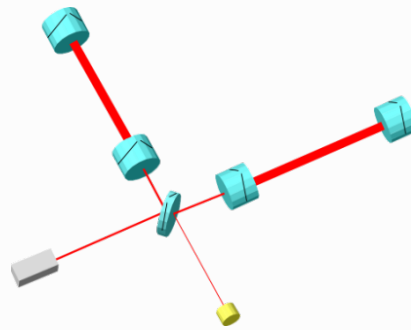
Installation and Operation: outline



iKAGRA (2010.10 – 2015.12)

3-km FPM interferometer

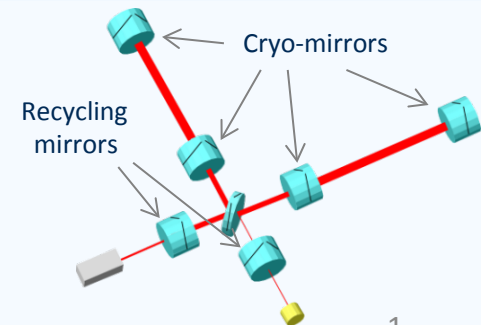
- Baseline 3km room temp.
- Operation of total system with simplified IFO and VIS.



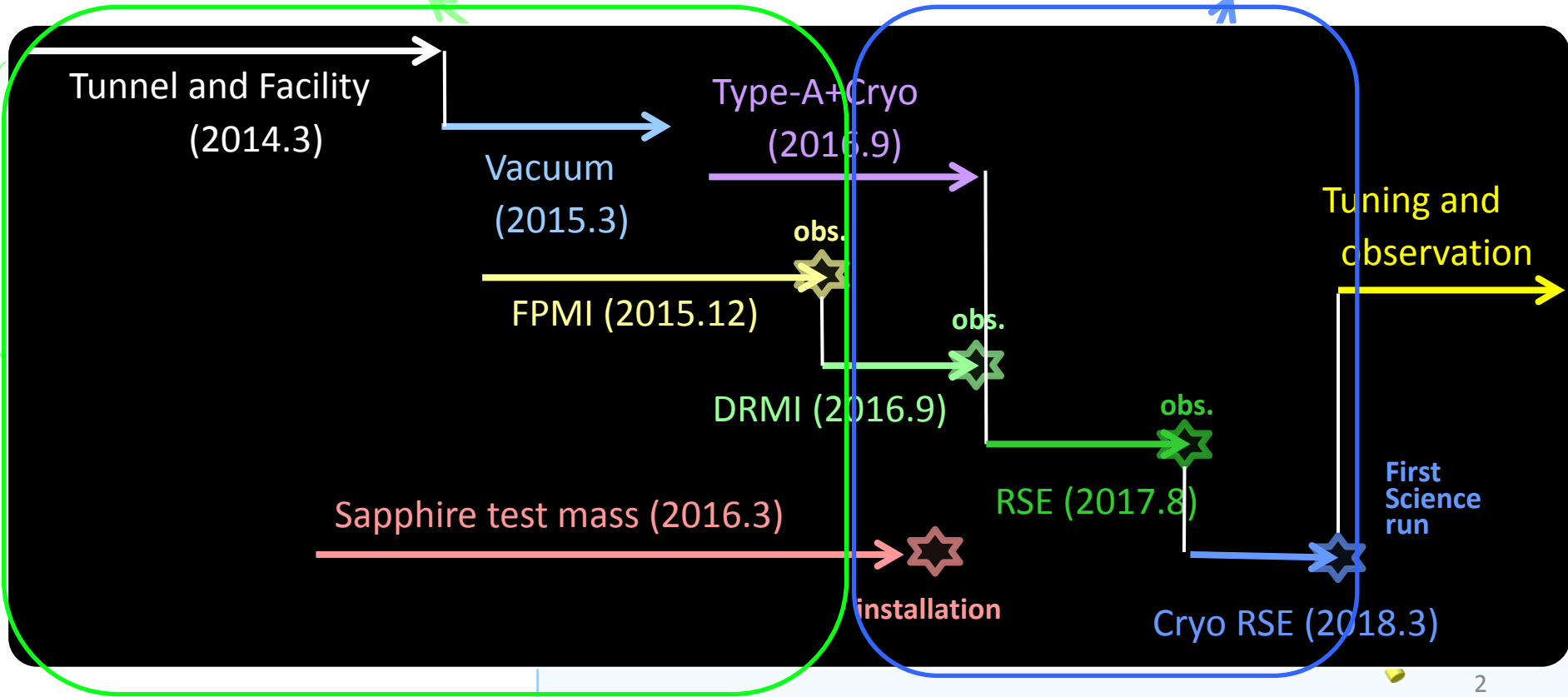
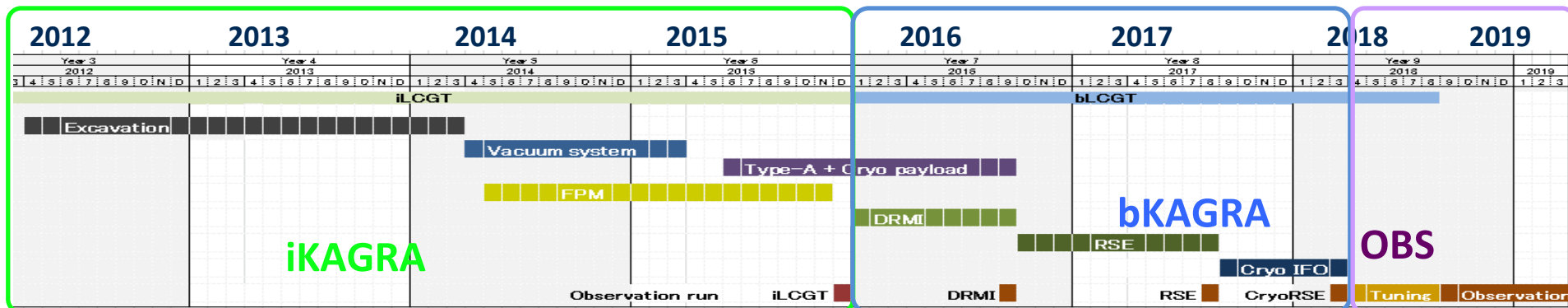
bKAGRA (2016.1 – 2018.3)

Operation with full config.

- Final IFO+VIS configuration
- Cryogenic operation.



Installation and Operation: outline

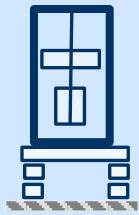


iKAGRA configuration

iKAGRA obs. Run in **Dec. 2015** ~1 month

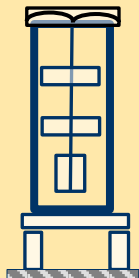
iKAGRA configuration

- Room-temp. test masses suspended by Type-Bp payload
- FPMI with 2.94 km arm cavities
- Low laser power (power TBD).
- On-site test of VIS and Cryo system



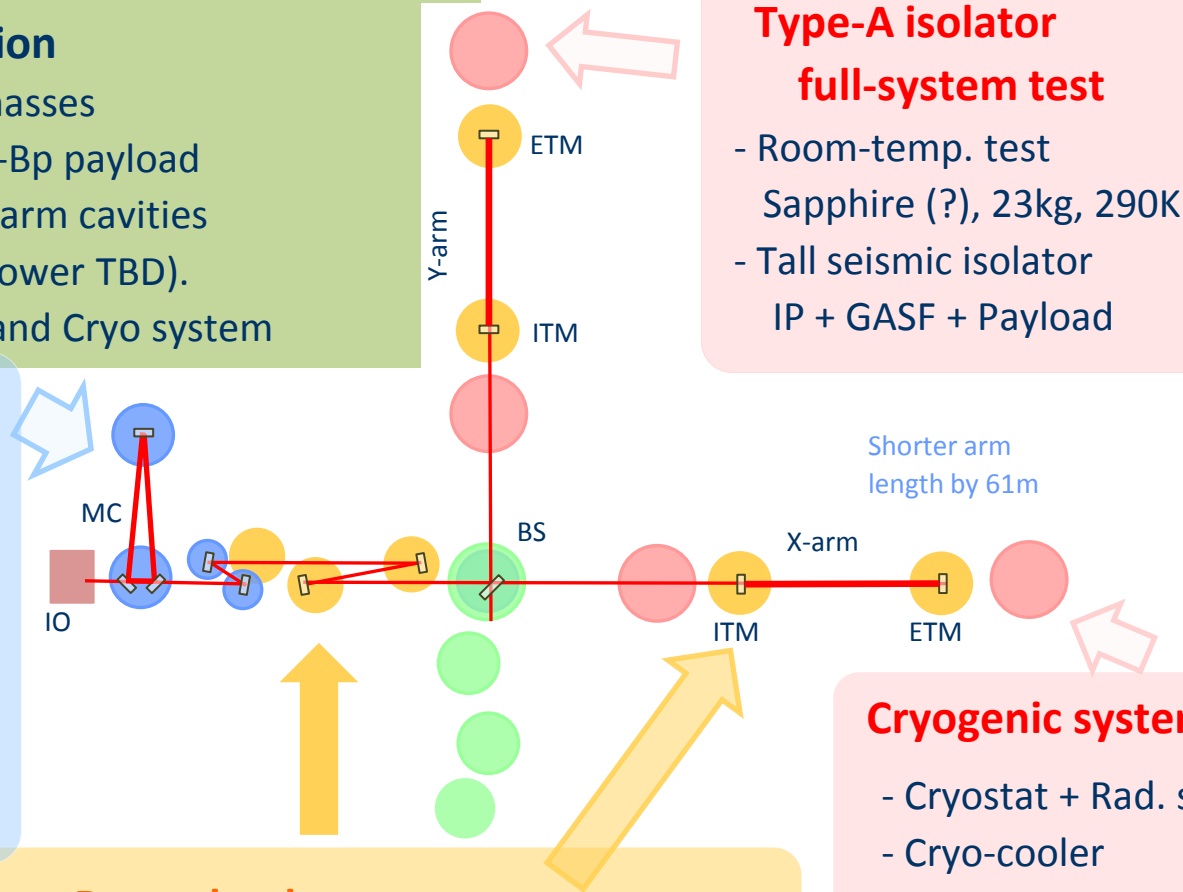
Type-C system

- Mode cleaner
Silica, 0.5kg, 290K
- Stack + Payload



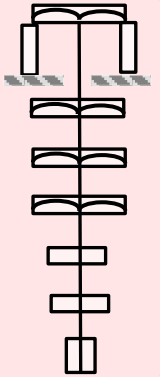
Type-Bp payload

- Test mass and Core optics (BS, FM,..)
Silica, 10kg, 290K
- Seismic isolator
Table + GASF + Type-B Payload



Type-A isolator full-system test

- Room-temp. test
Sapphire (?), 23kg, 290K
- Tall seismic isolator
IP + GASF + Payload

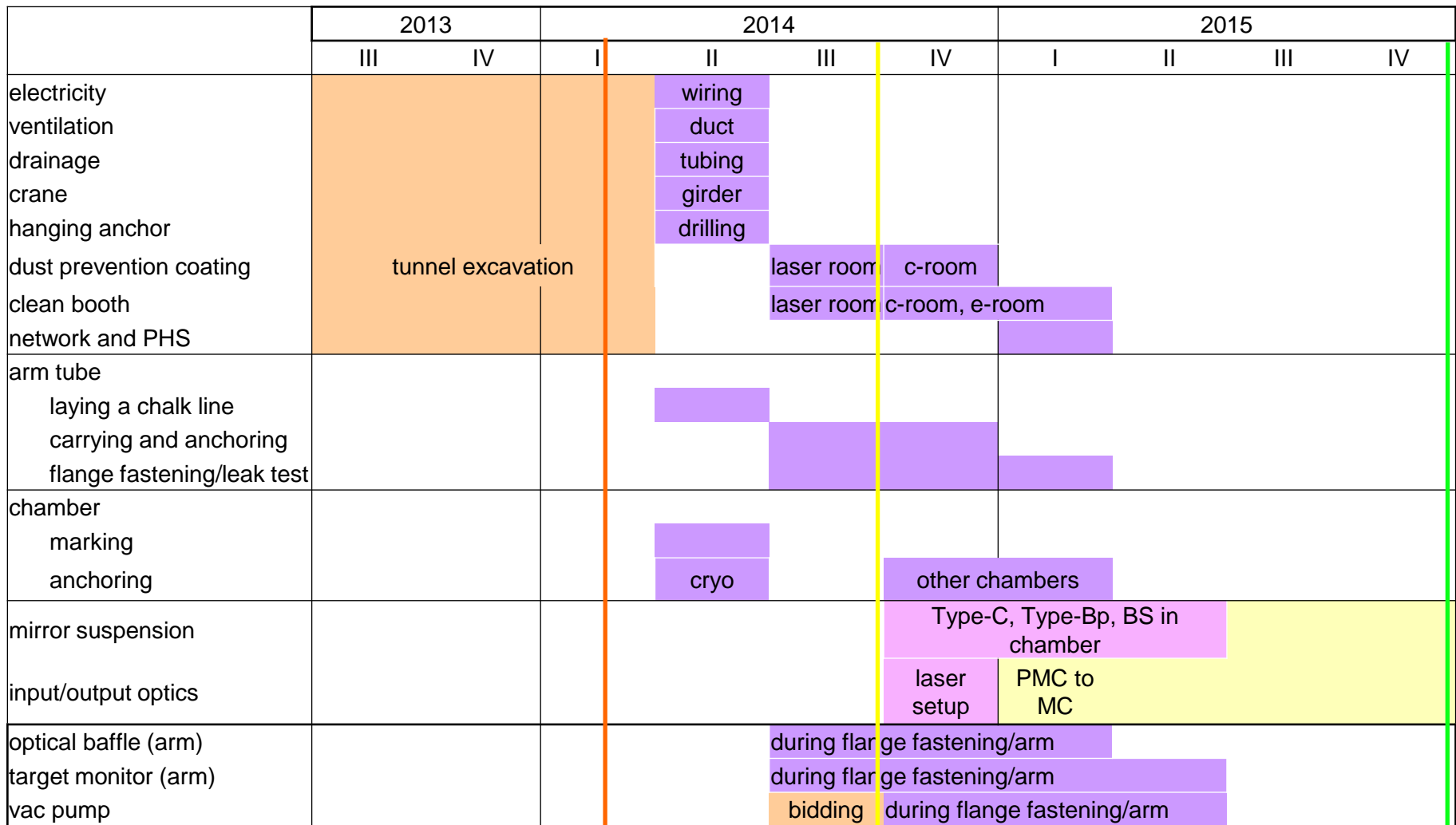


Shorter arm
length by 61m

Cryogenic system test

- Cryostat + Rad. shield duct
- Cryo-cooler
- Cryogenic payload
- Fixed Type-A SAS

Onsite installation of iKAGRA: 2014-2015



Feb 2014

Oct 2014

Dec 2015

Start input-optics installation

iKAGRA obs.



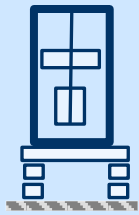
FY2014

bKAGRA configuration

first science run in **FY2017**

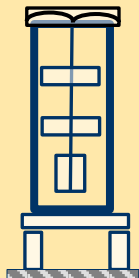
bKAGRA configuration

- Cryogenic test masses
- 3 km arm cavities
- RSE with power recycling



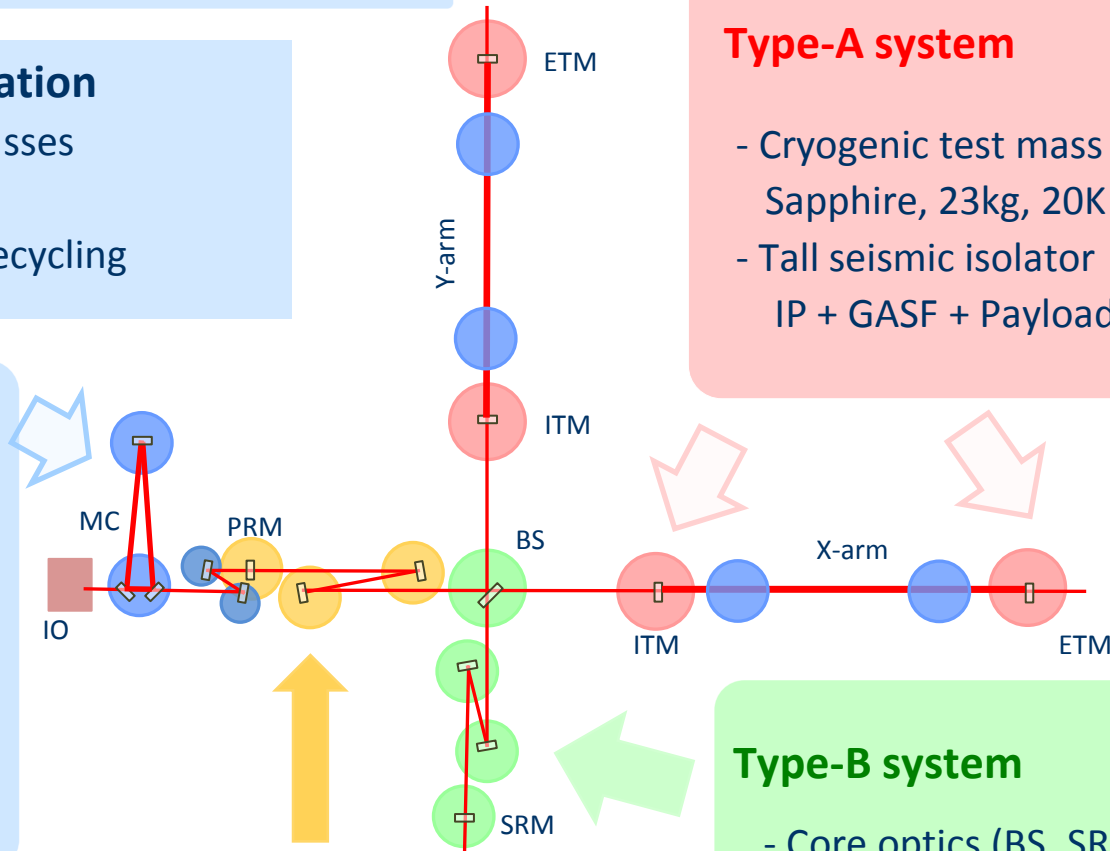
Type-C system

- Mode cleaner
Silica, 0.5kg, 290K
- Stack + Payload



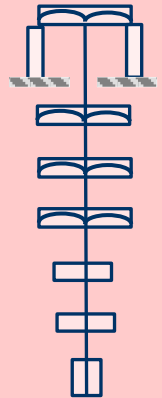
Type-Bp payload

- Test mass and Core optics (BS, FM,...)
Silica, 10kg, 290K
- Seismic isolator
Table + GASF + Type-B Payload



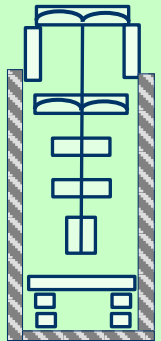
Type-A system

- Cryogenic test mass
Sapphire, 23kg, 20K
- Tall seismic isolator
IP + GASF + Payload



Type-B system

- Core optics (BS, SRM,...)
Silica, 10kg, 290K
- IP + GASF + Payload
- Stack for aux. optics



Onsite installation of bKAGRA: 2016-2017

	2015		2016				2017				
	III	IV	I	II	III	IV	I	II	III	IV	
mirror and suspension PRM SRM, SR1, SR2 iKAGRA TM ETM (cryo) ITM (cryo)			removing	install	install	connect chamber	setup/install				
chamber output optics green, reference BR telescope		install install install									
input optics			upgrade	PMC to MC							
output optics				install							
optical baffle small angle wide angle			install	install							

Dec 2015 iKAGRA obs.
Jan 2016 Start suspension replacement

By the end of FY 2017
Start bKAGRA obs.