

Rough Sketch of In-Vac PD and QPD Layout Plans

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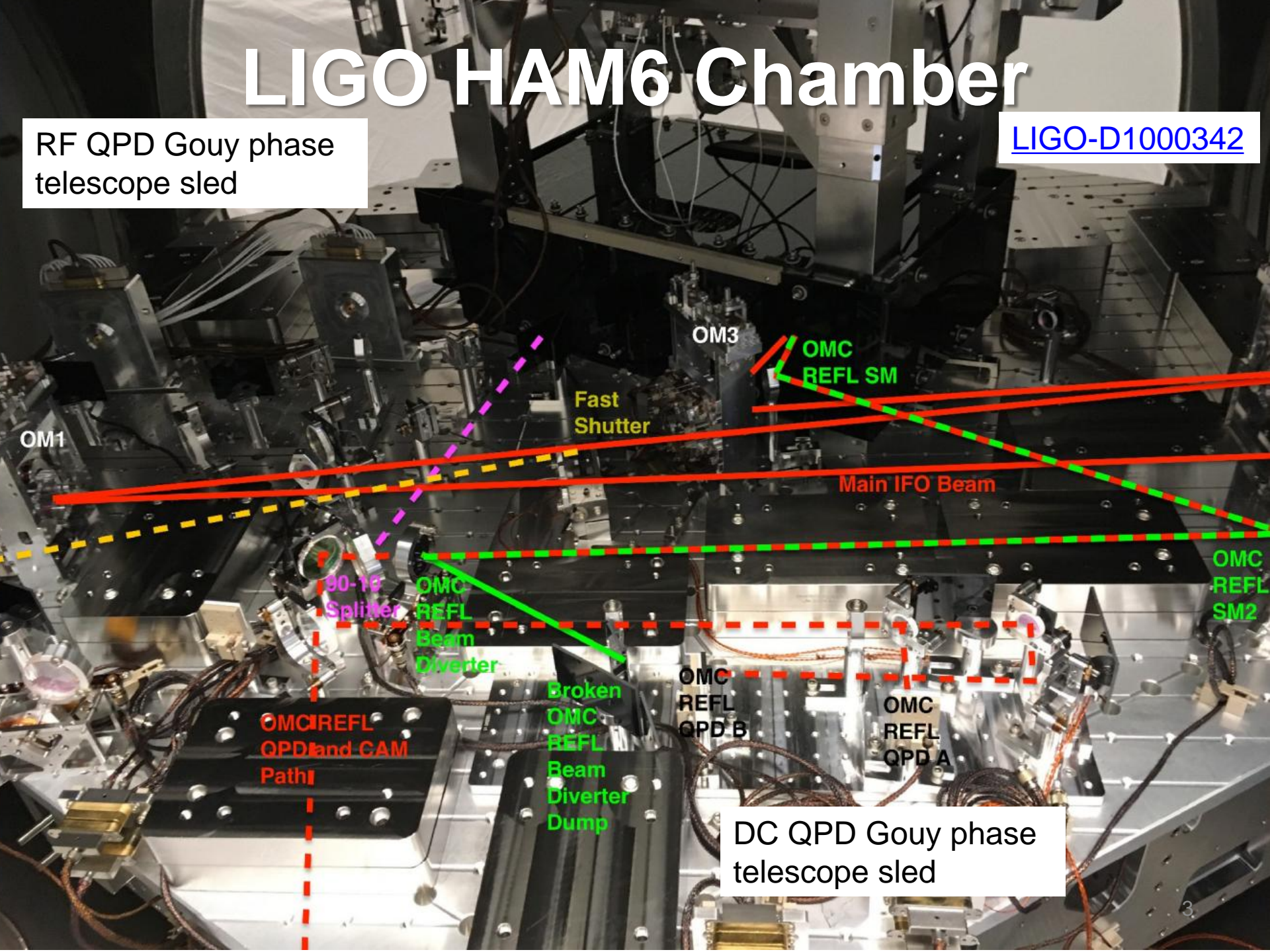
References

- [JGW-G2416134](#) LSC RF PD In-vac Enclosure Review
- [JGW-T2416103](#) In-vac PD/QPD Layout Brainstorming
- [JGW-T1909817](#) AS in-air optical layout
- [JGW-G2315526](#) KFC interface optical layout
- [JGW-D2415729](#) 3D model of optics in OMC chamber (Oct. 18th, 2023) ***MOST UPDATED DRAWING NOW*** (*but not completely true*)
- [LIGO-T1000247](#) LIGO ISC Gouy phase telescope design
- [LIGO-D1002042](#) LIGO ISC QPD Sled Assembly

LIGO HAM6 Chamber

RF QPD Gouy phase telescope sled

[LIGO-D1000342](#)



OM1

OM3

OMC
REFL SM

Fast
Shutter

Main IFO Beam

90-18
Splitter

OMC
REFL
Beam
Diverter

OMC
REFL
SM2

OMC REFL
QPD and CAM
Path

Broken
OMC
REFL
Beam
Diverter
Dump

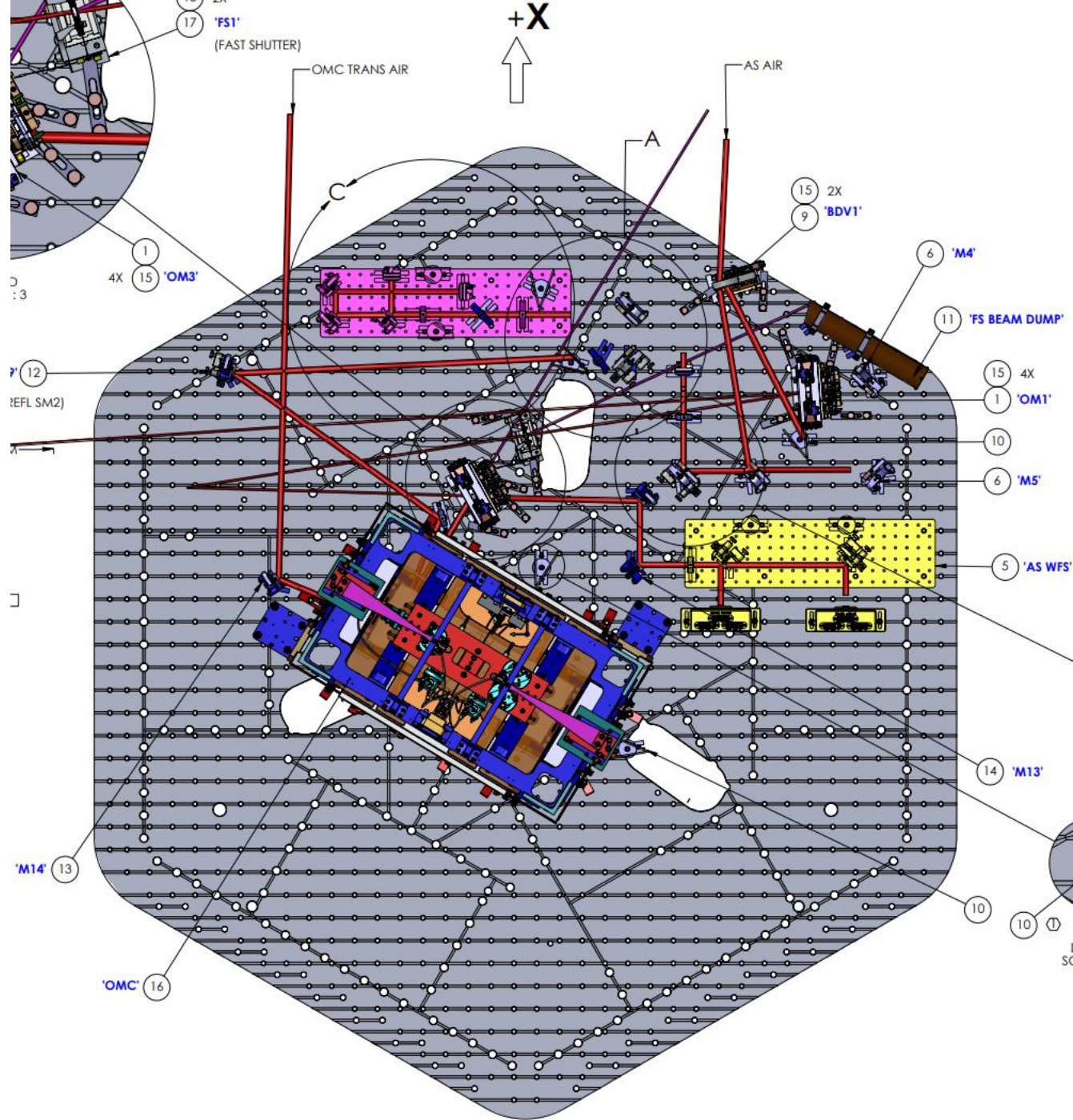
OMC
REFL
QPD B

OMC
REFL
QPD A

DC QPD Gouy phase
telescope sled

LIGO HAM6 Chamber

[LIGO-D1000342](https://www.ligo.caltech.edu/publications/LIGO-D1000342)



AS Plan v1: Current layout

[JGW-D2415729](#)

q-parameter at OBS1 (first BS on OMC breadboard)

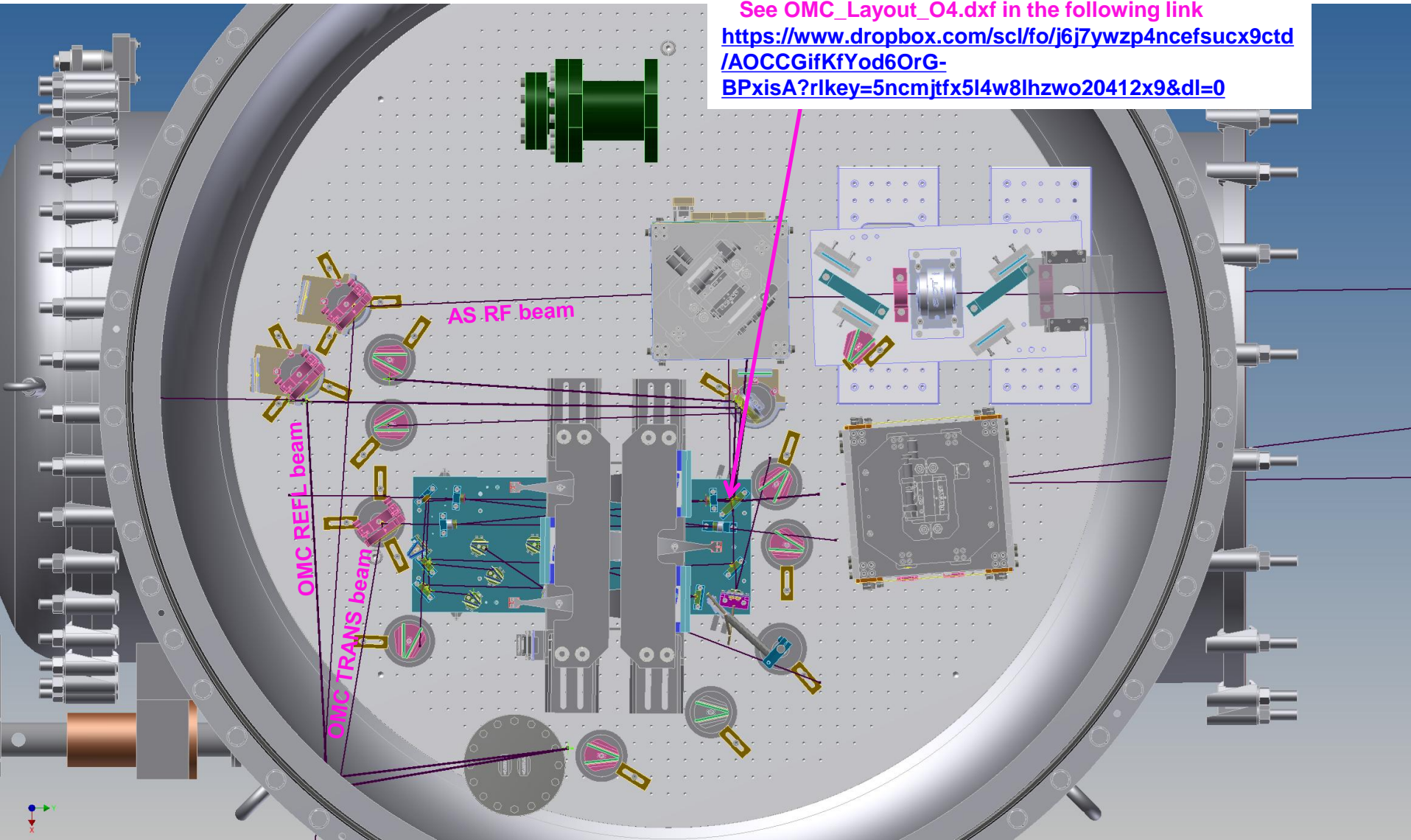
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y: $-0.21291352981555933+0.5273533359729127i$

See OMC_Layout_O4.dxf in the following link

[https://www.dropbox.com/scl/fo/j6j7ywzp4ncefsucx9ctd/AOCCGifKfYod6OrG-](https://www.dropbox.com/scl/fo/j6j7ywzp4ncefsucx9ctd/AOCCGifKfYod6OrG-BPxisA?rlkey=5ncmjtfx5l4w8lhzwo20412x9&dl=0)

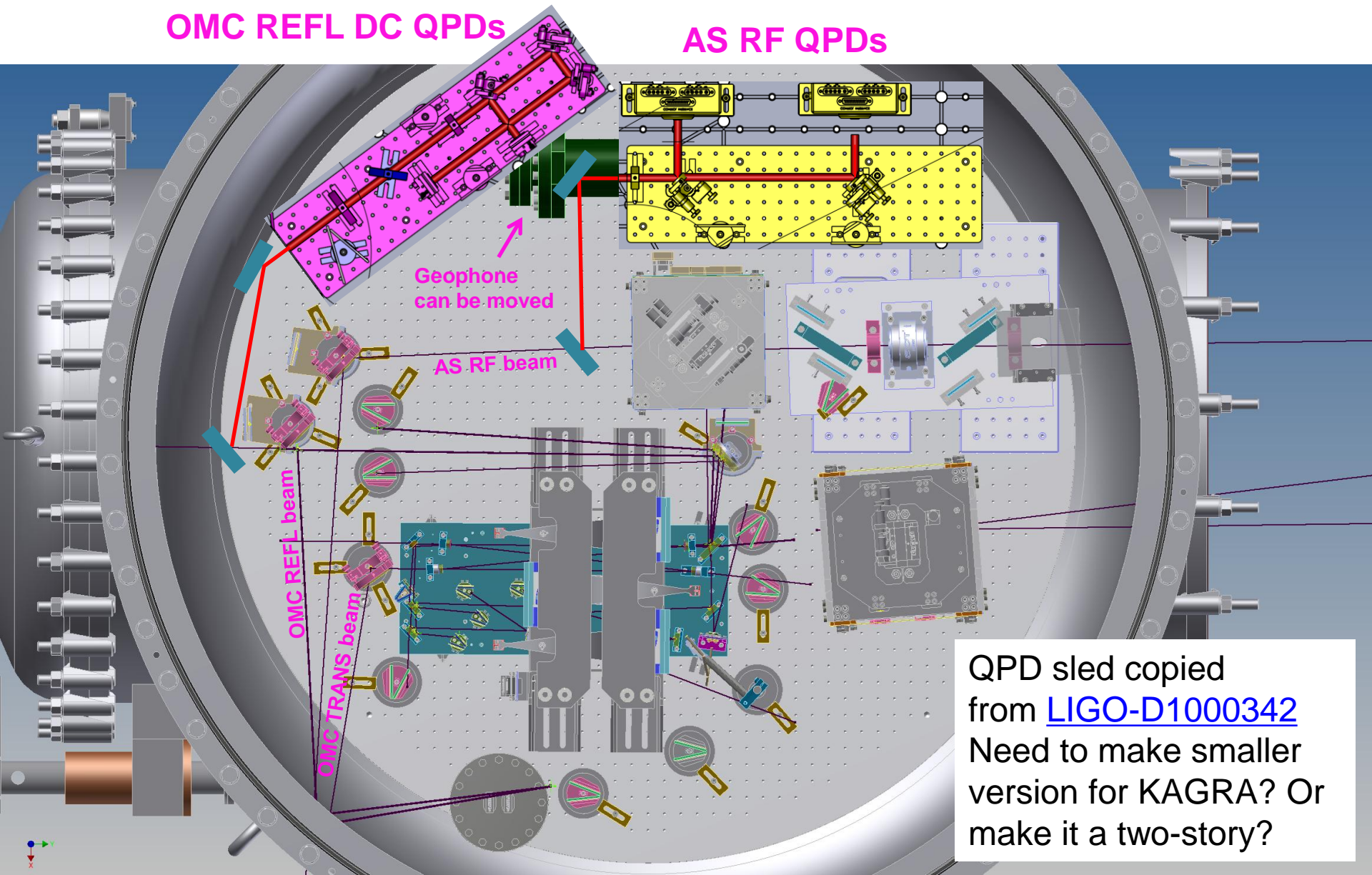
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AS Plan v1: Possible layout

OMC REFL DC QPDs

AS RF QPDs



Geophone
can be moved

AS RF beam

OMC REFL beam

OMC TRANS beam

QPD sled copied from [LIGO-D1000342](https://www.ligo.org/documents/1000342)
Need to make smaller version for KAGRA? Or make it a two-story?



REFL Plan v1

- To be added

POP Plan v1

- To be added