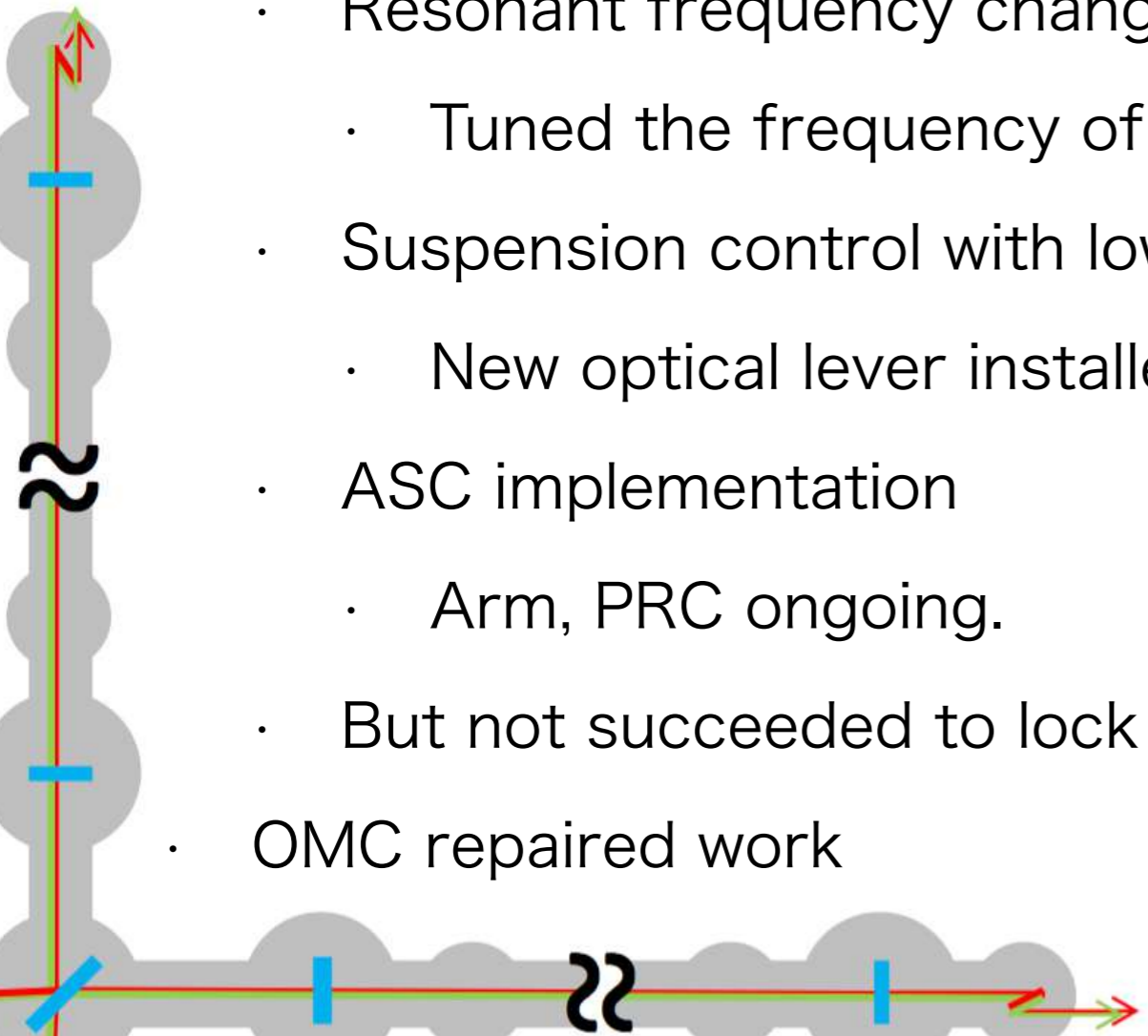
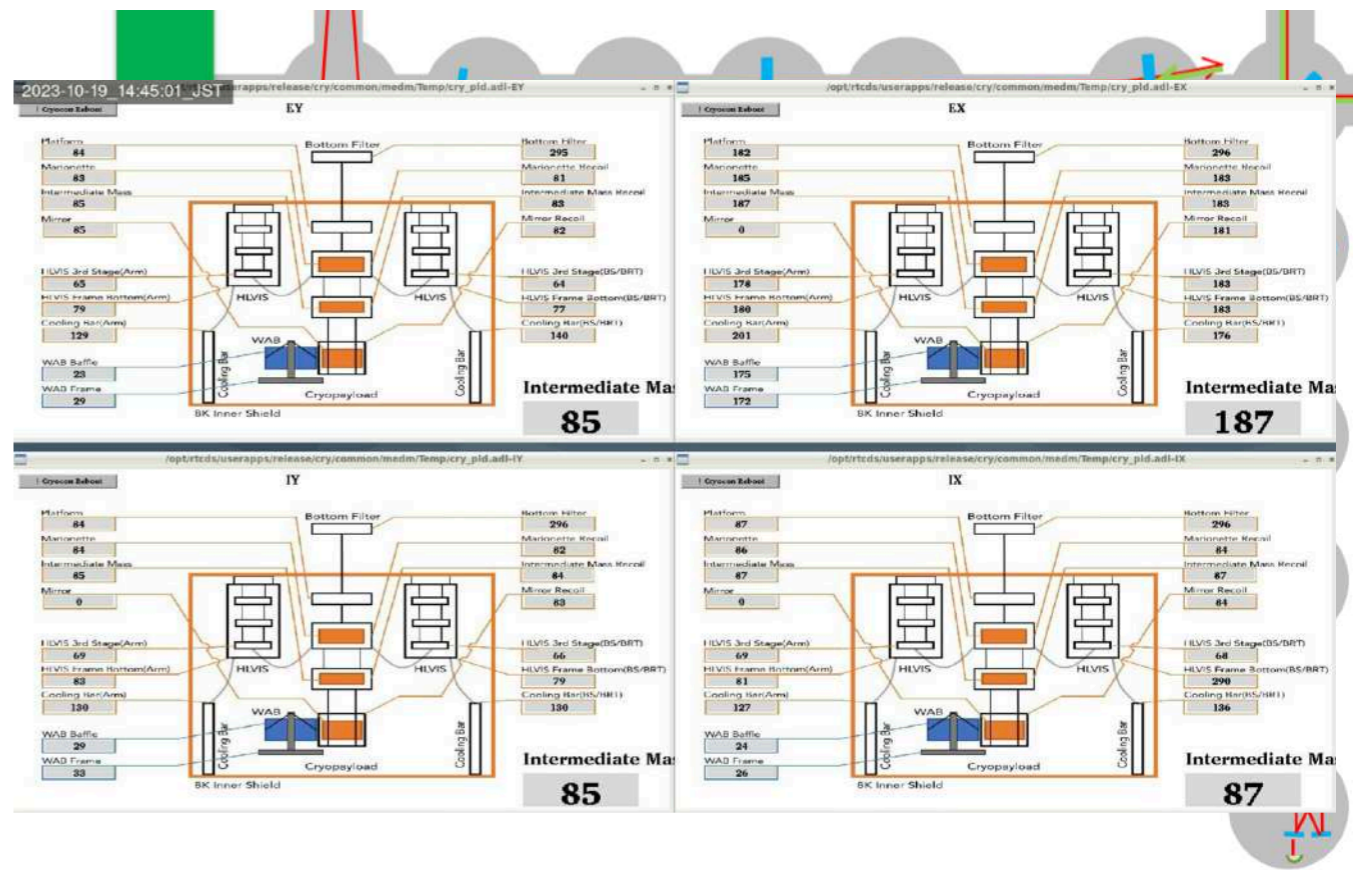


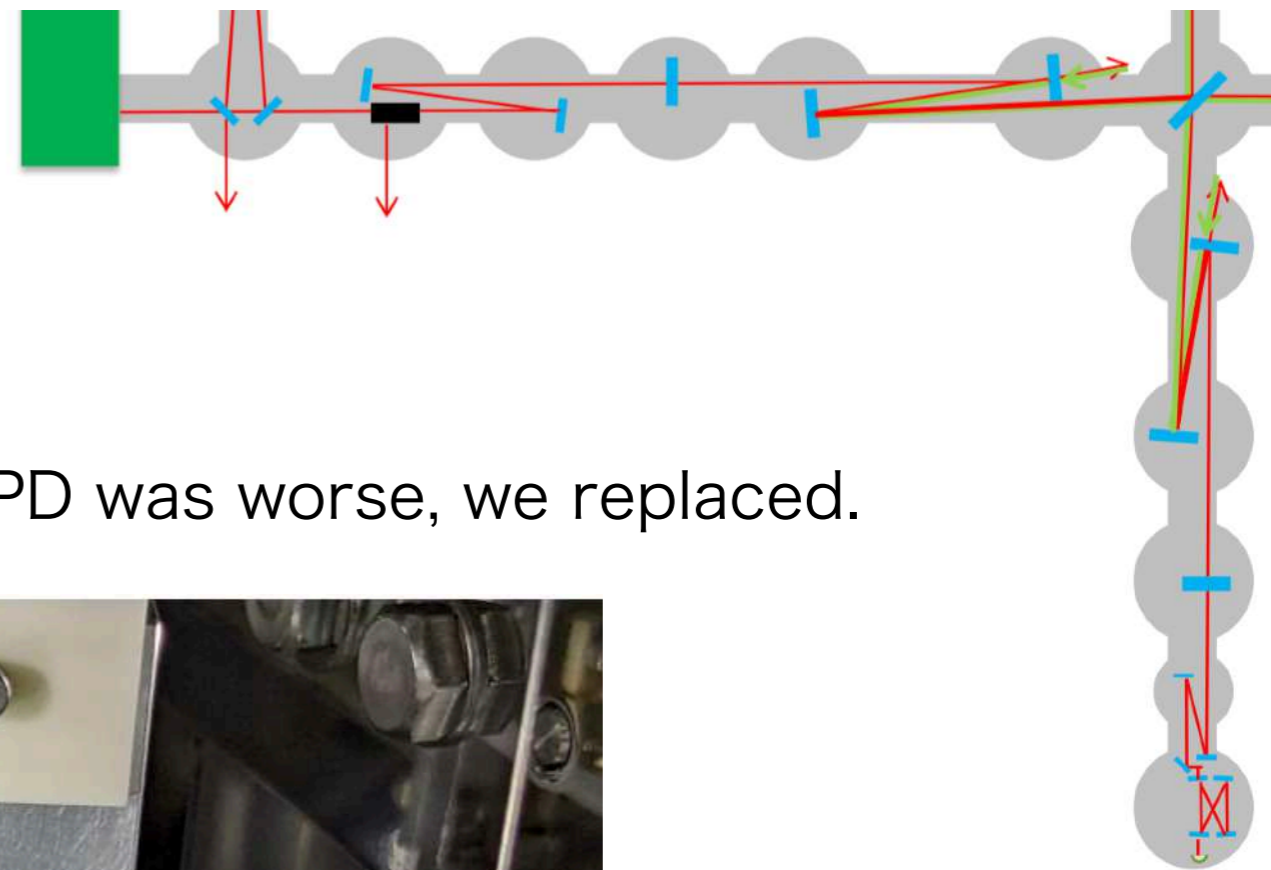


KAGRA status

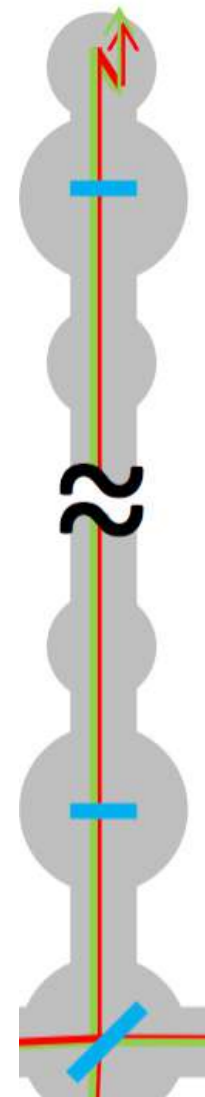
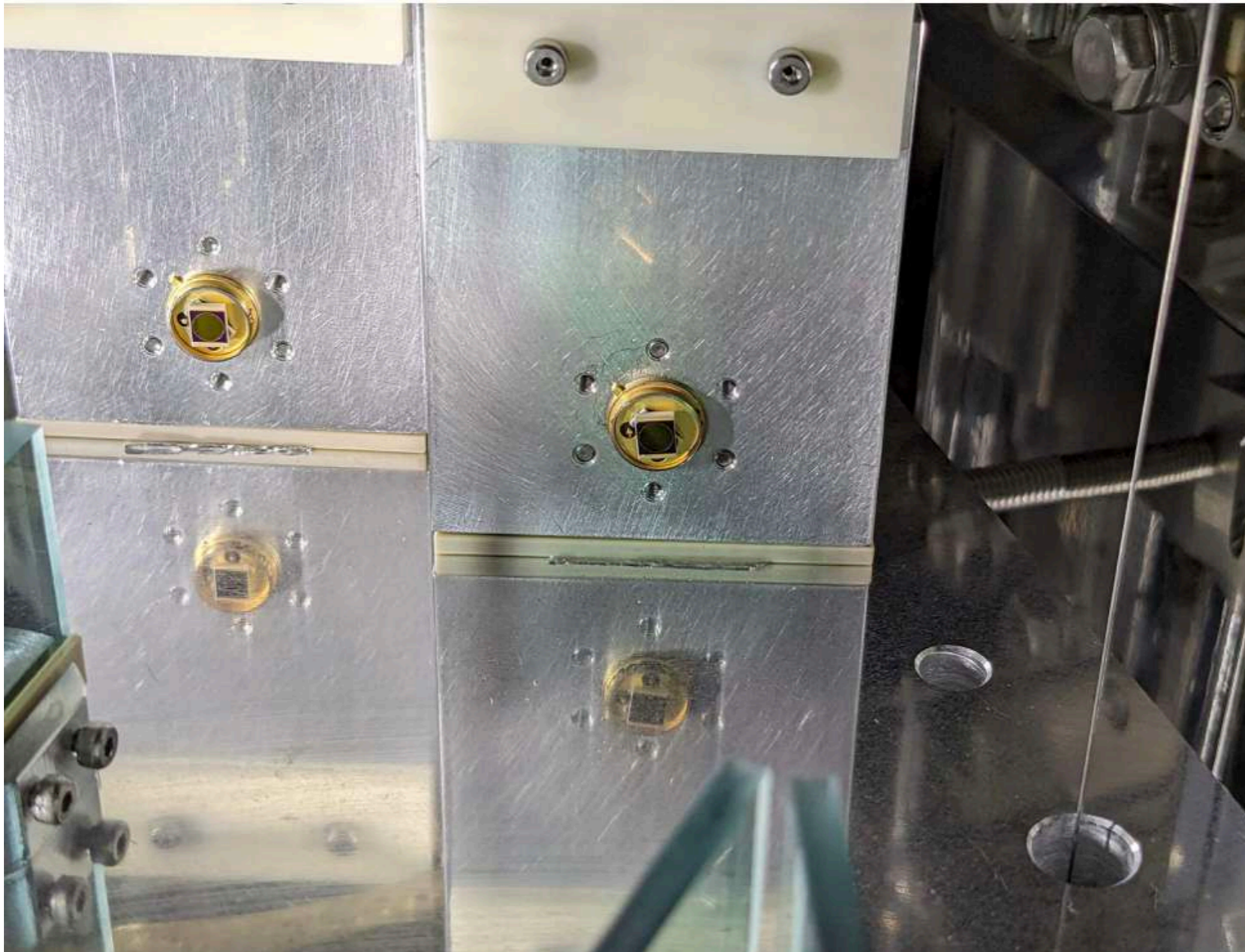
- Progress from last month:
 - Cooling EX: Started cooling down
 - Interferometer commissioning:
 - Resonant frequency changed due to cooling down
 - Tuned the frequency of notch filters and so on
 - Suspension control with lower noise sensors
 - New optical lever installed to MN stage
 - ASC implementation
 - Arm, PRC ongoing.
 - But not succeeded to lock PRFPMI DC readout after cooling down
 - OMC repaired work



OMC work

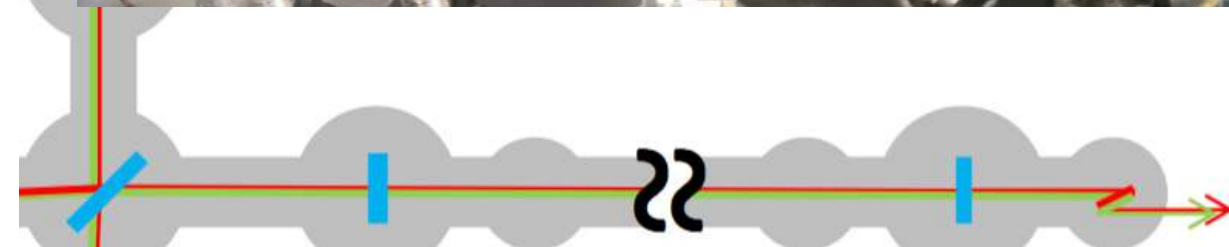
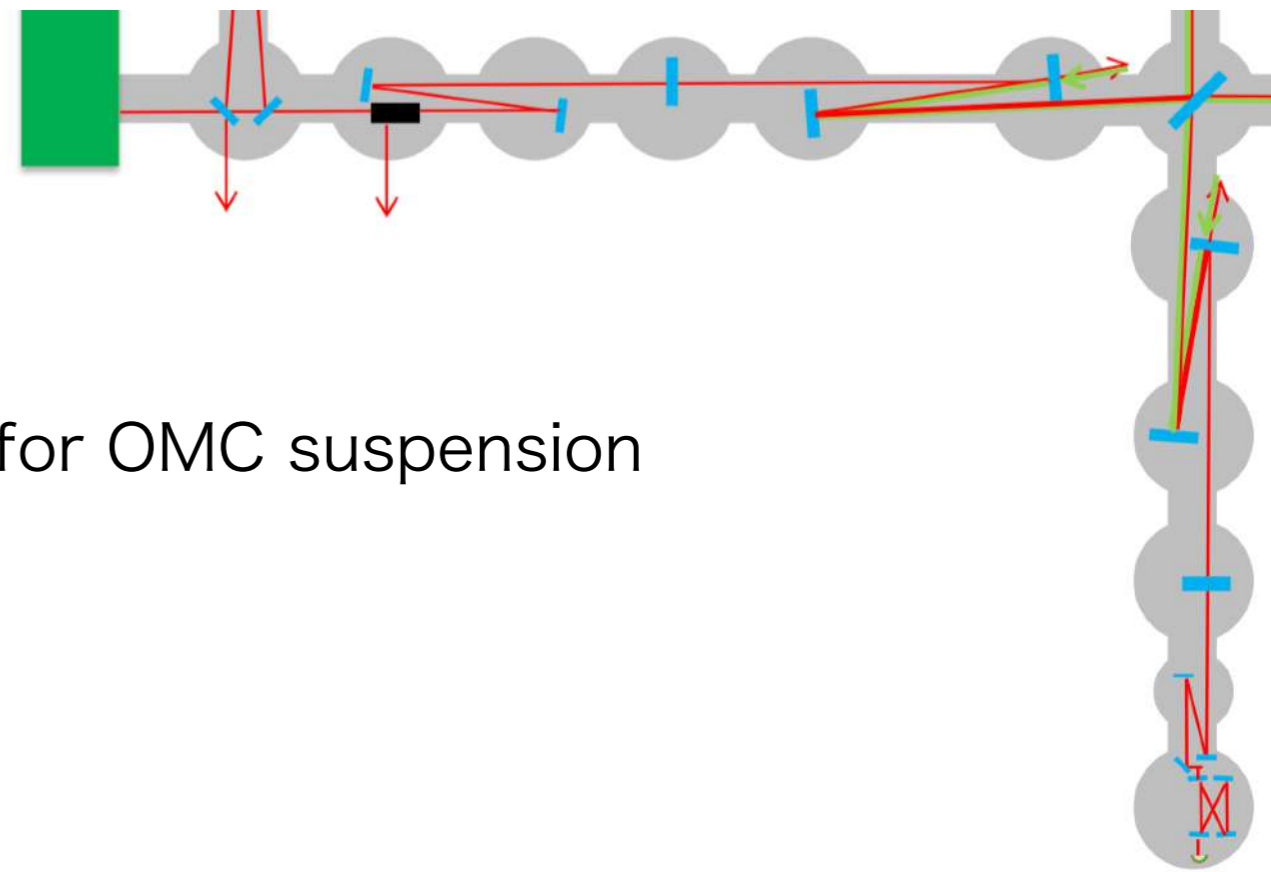
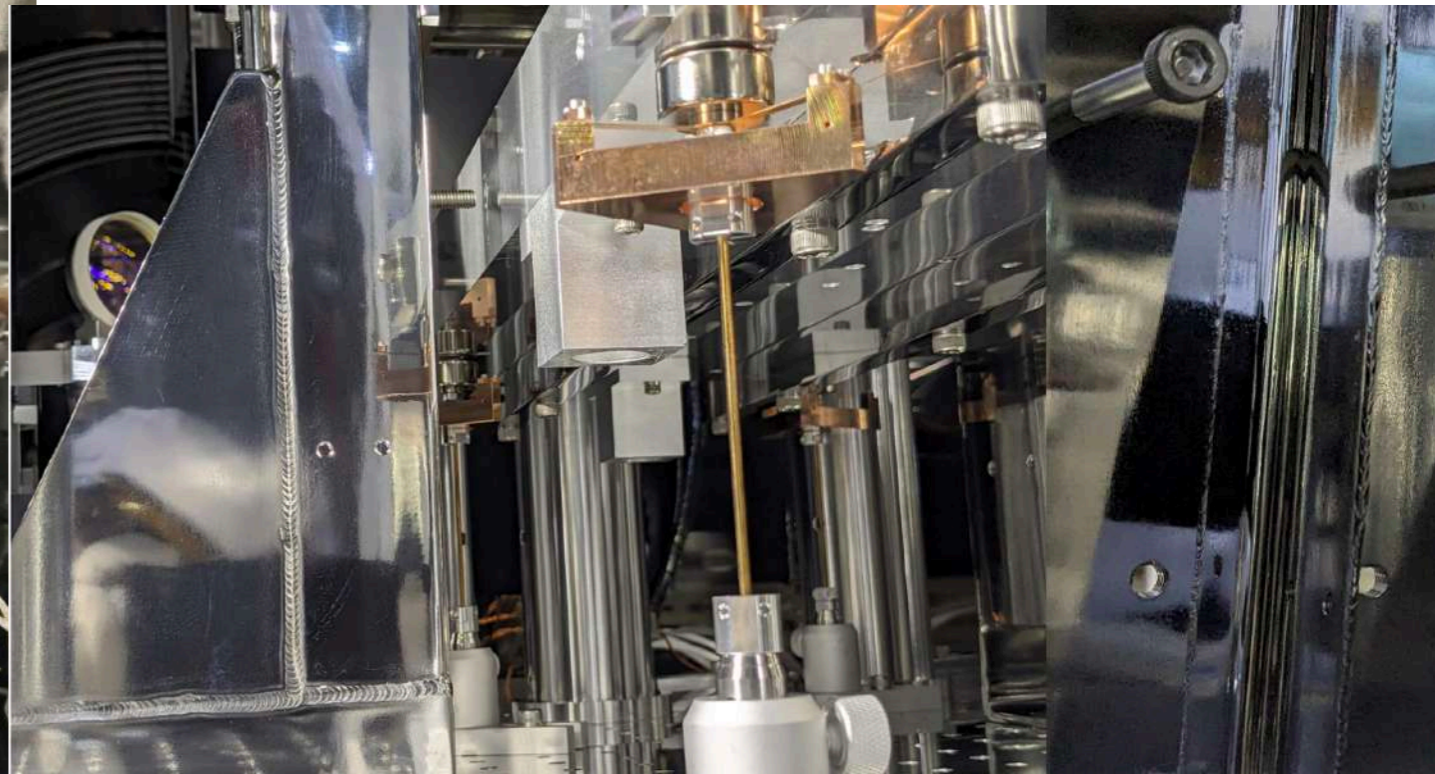
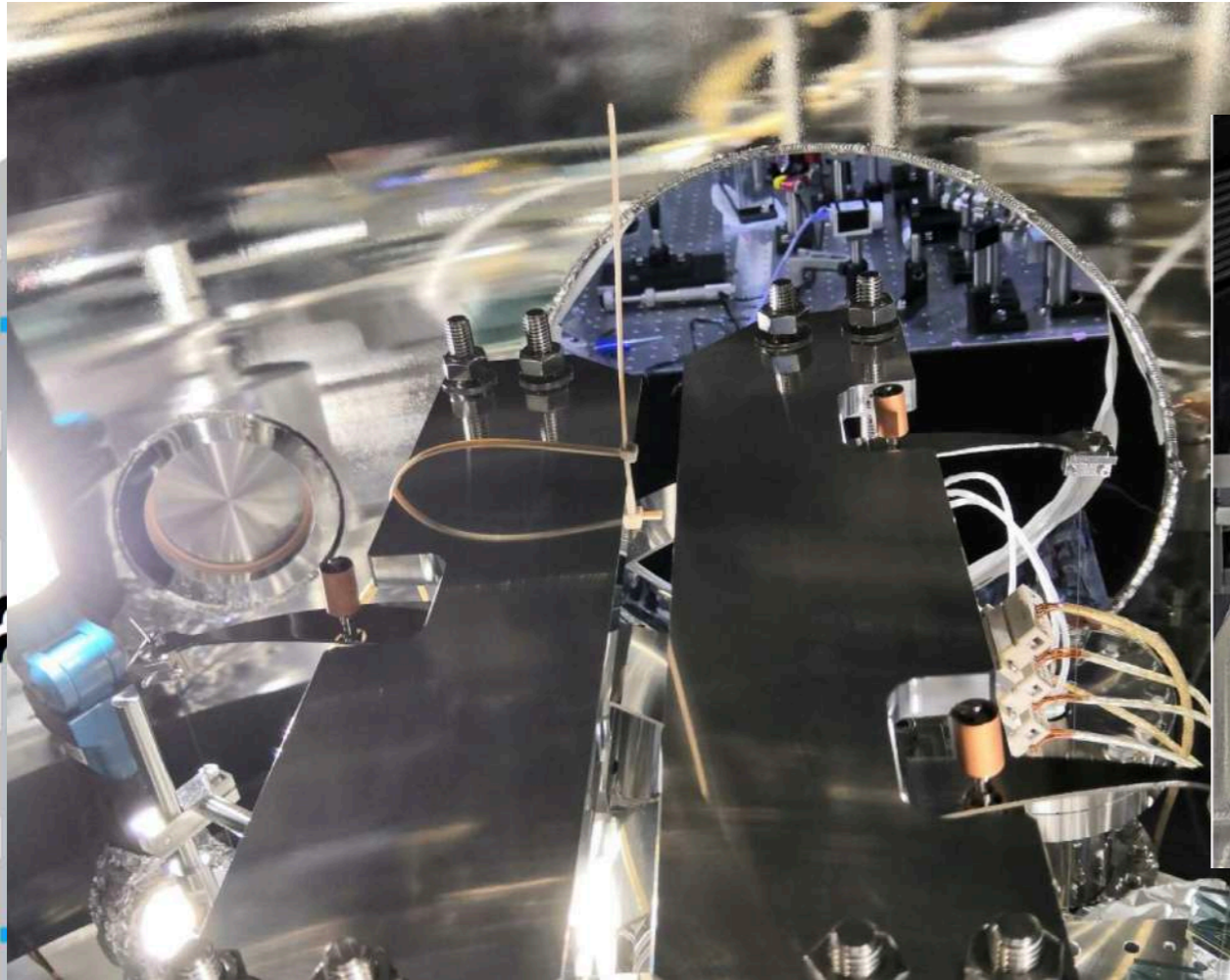


- Replaced one OMC DC PD
 - The noise level of one OMC DC PD was worse, we replaced.



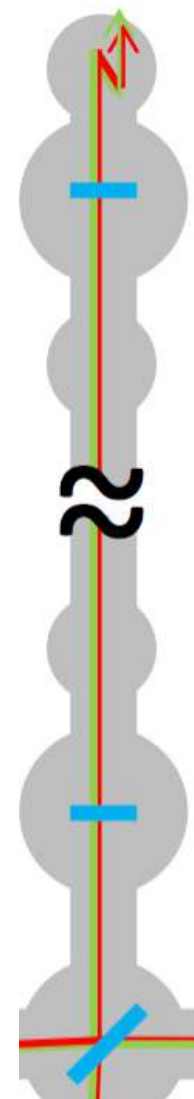
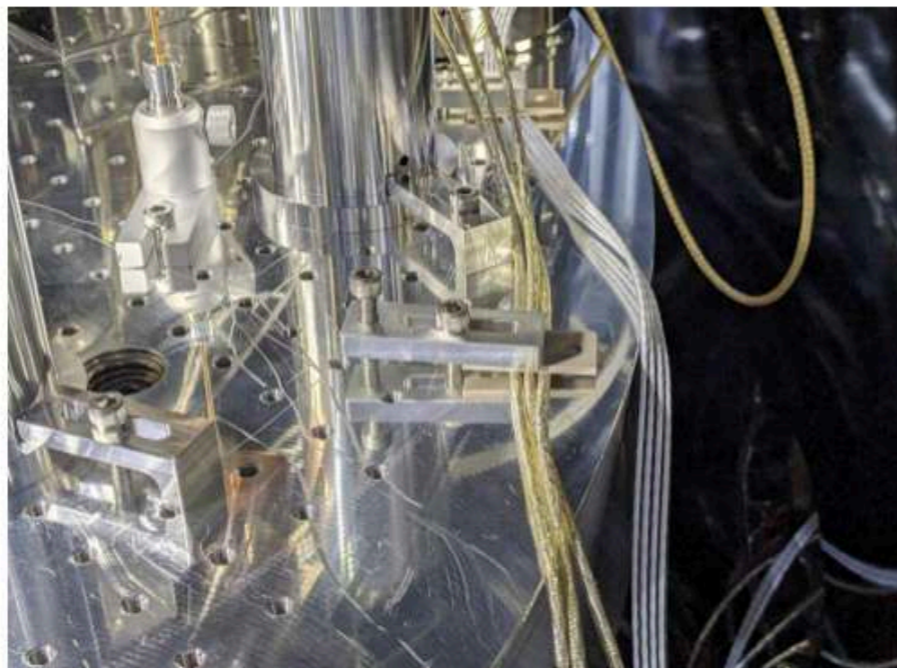
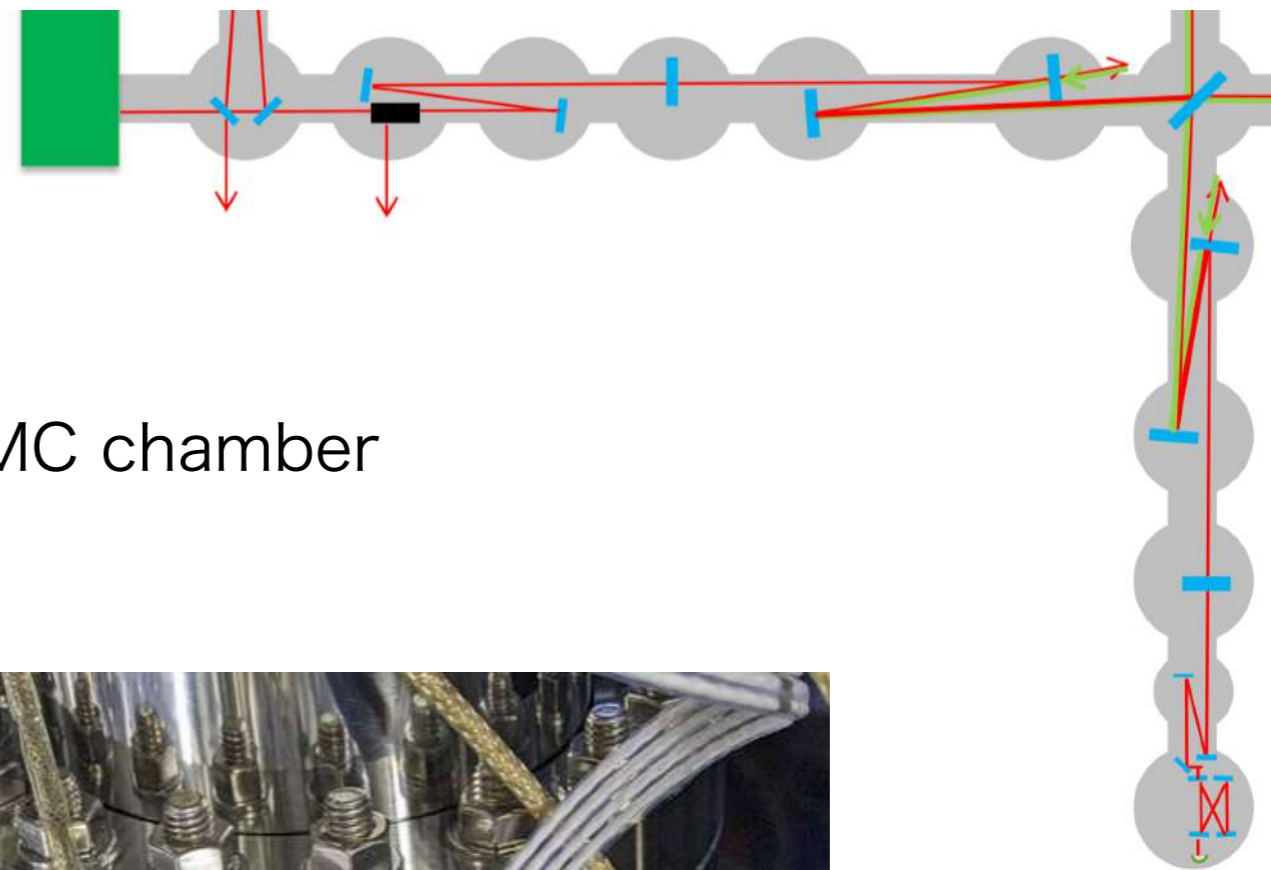
OMC work

- Installed the blade/board dampers for OMC suspension

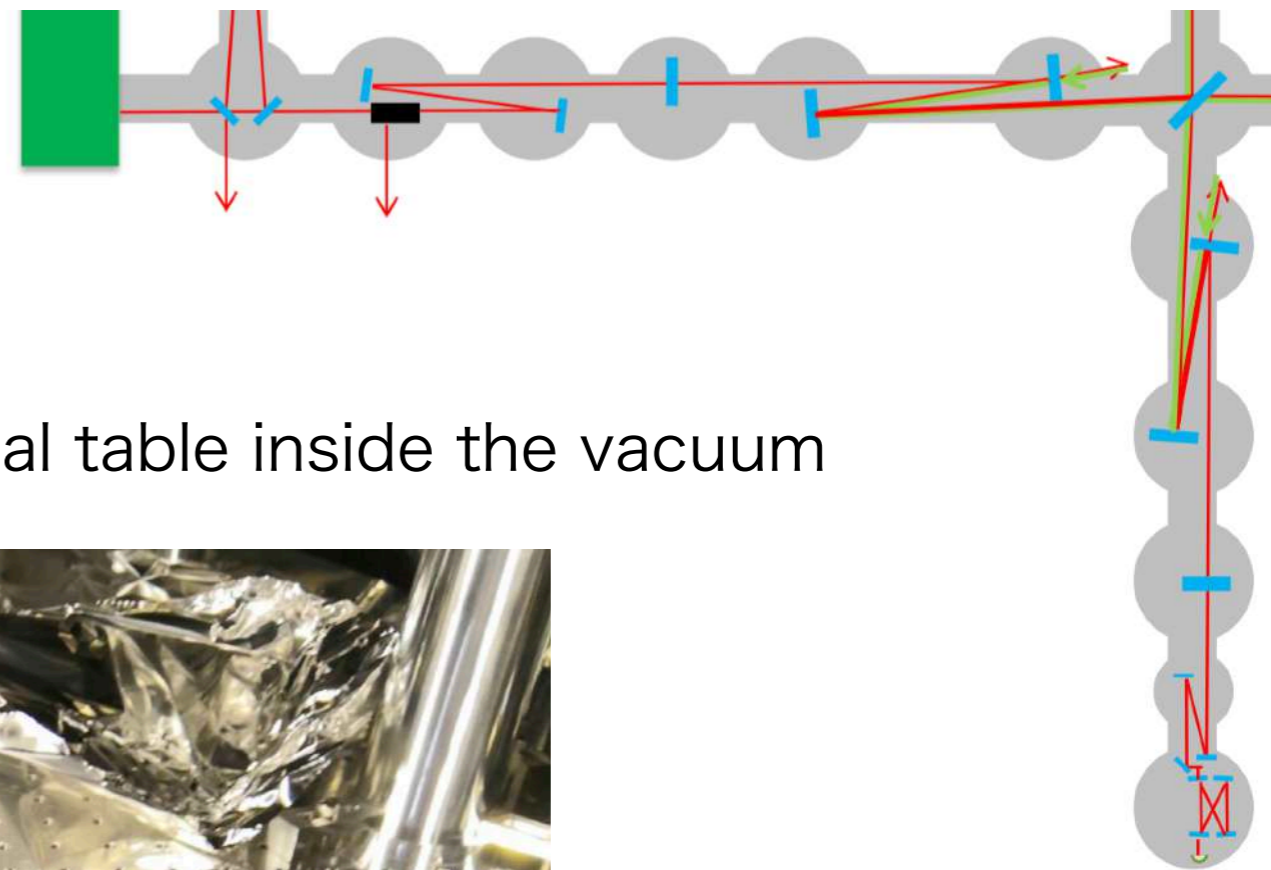


OMC work

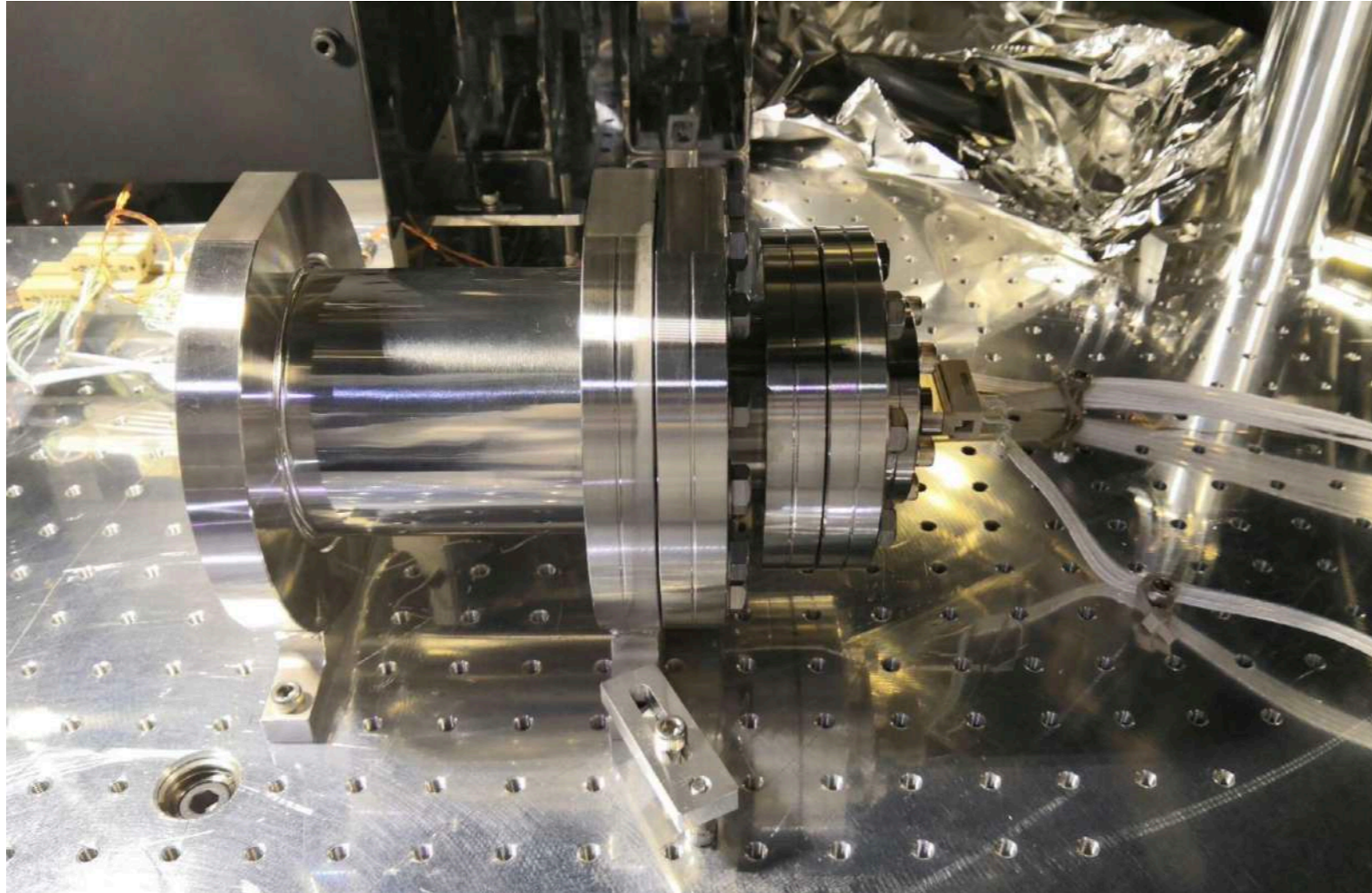
- Treatment the cabling inside the OMC chamber



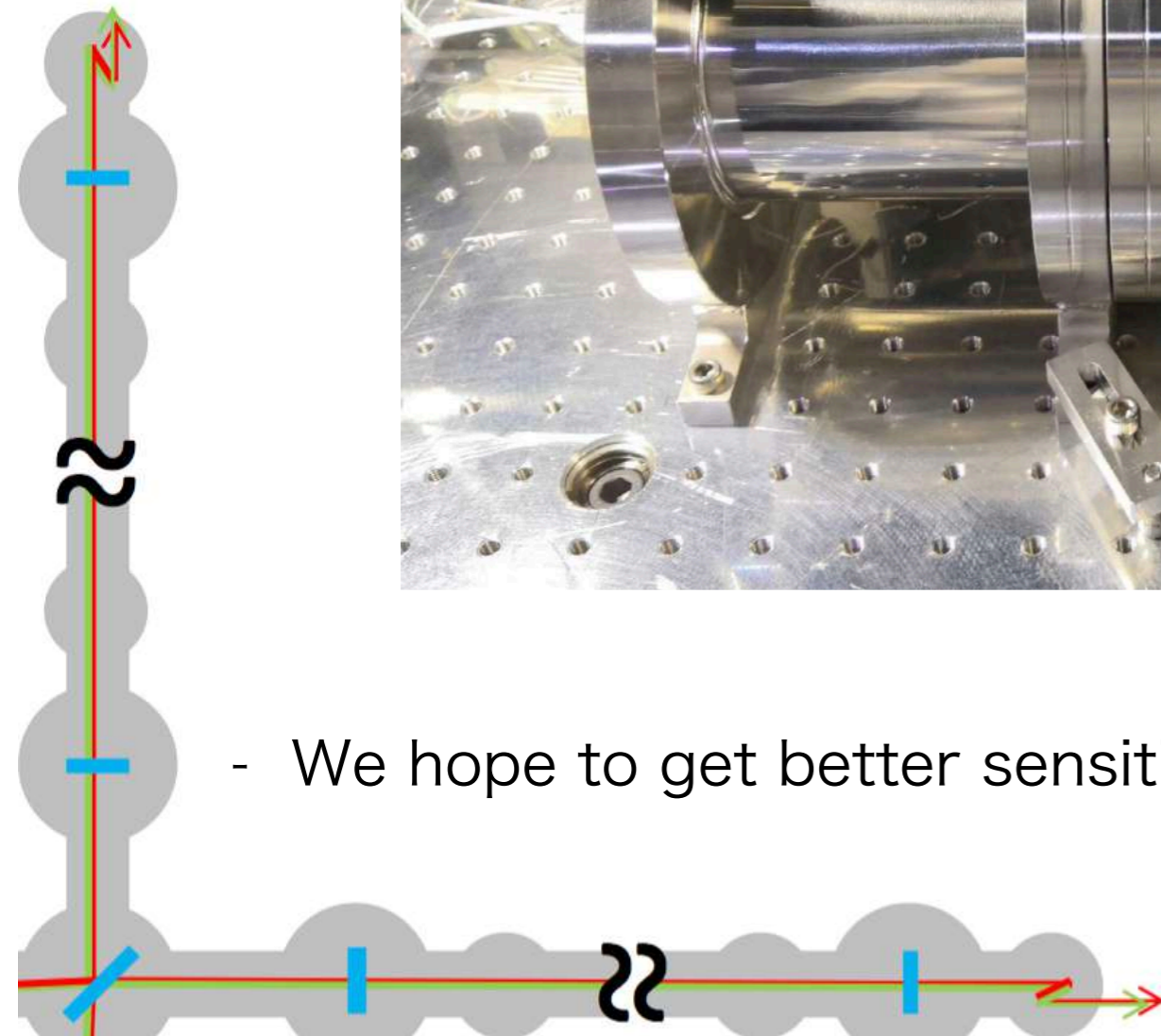
OMC work



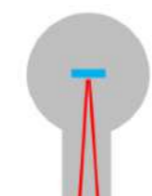
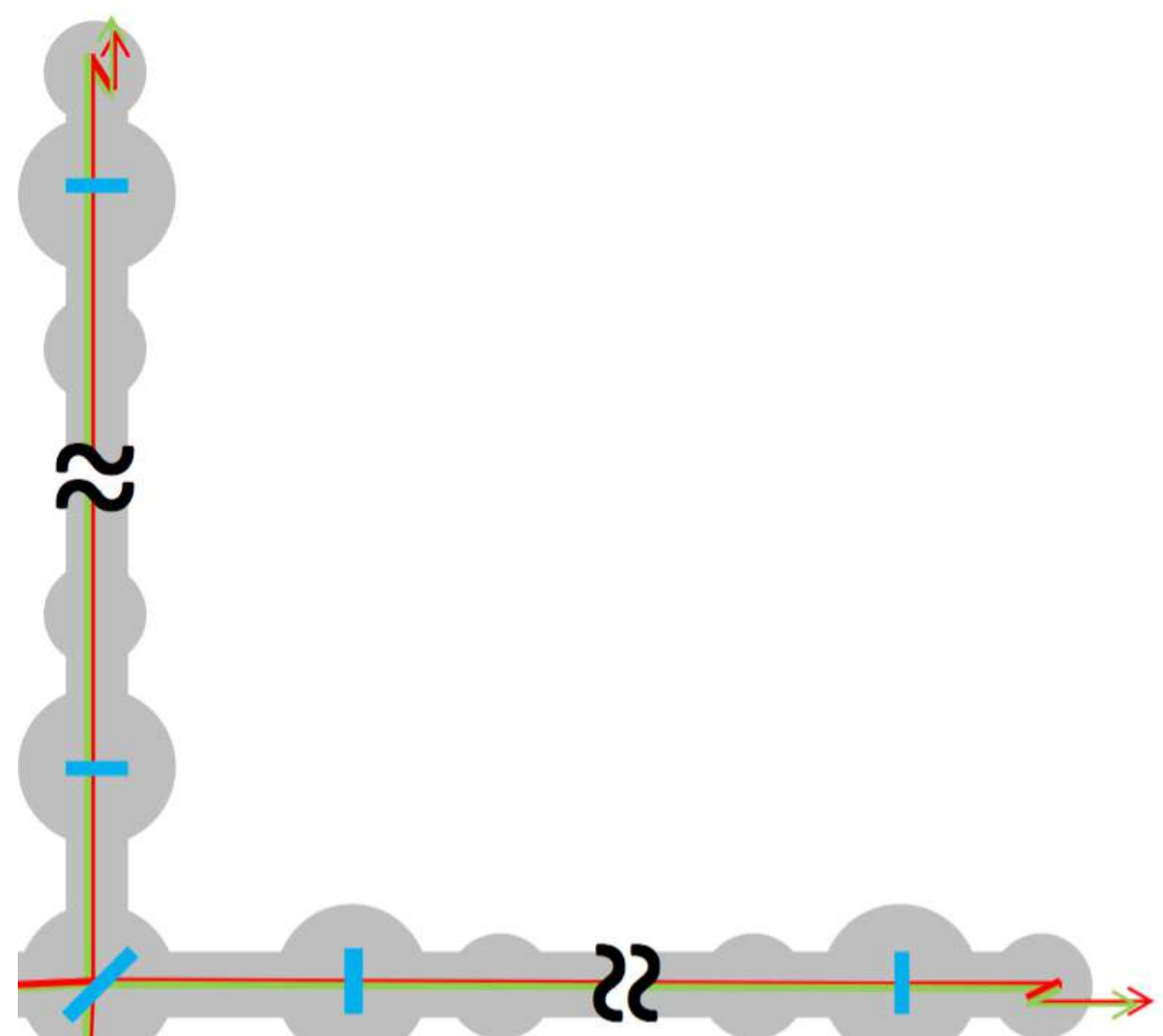
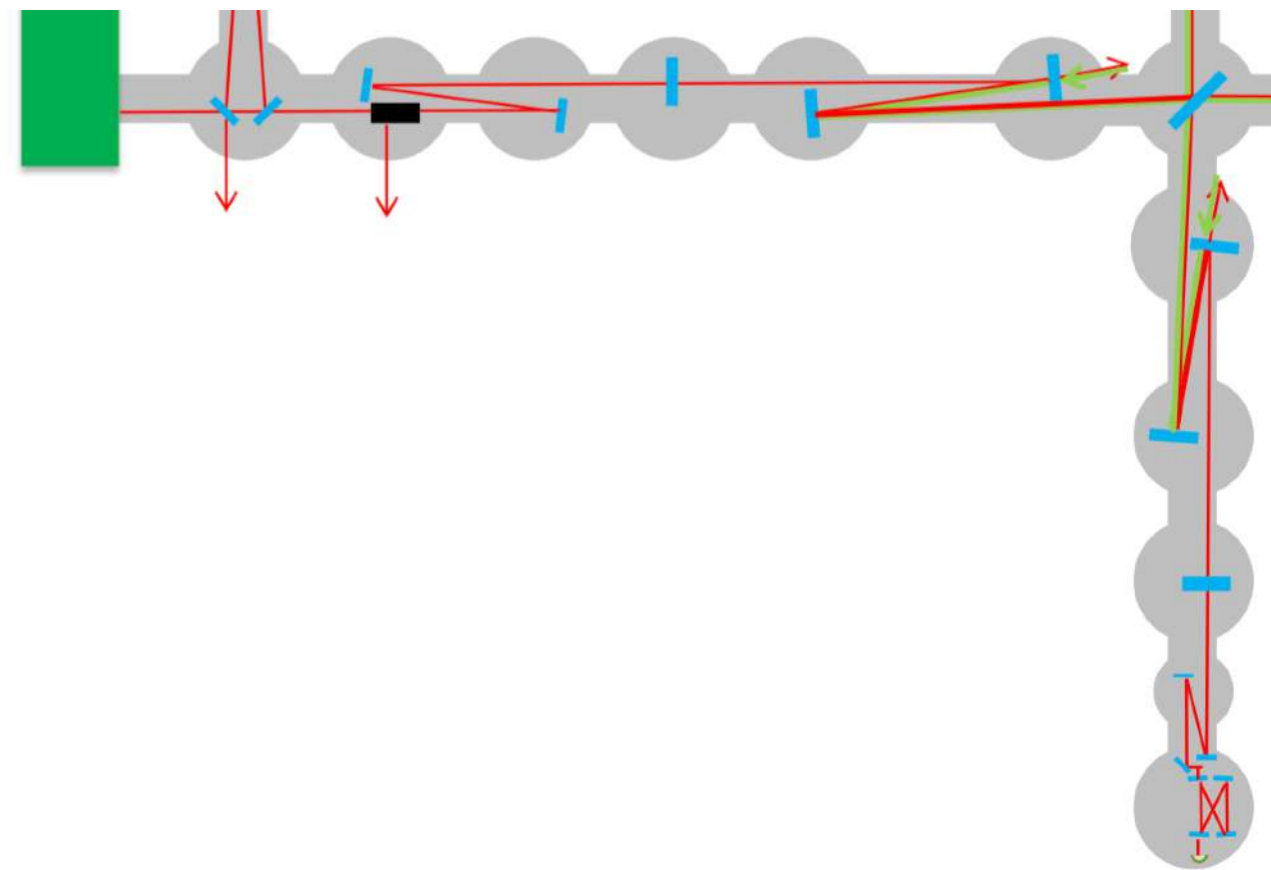
- Installed the geophone on the optical table inside the vacuum



- We hope to get better sensitivity by those works!!

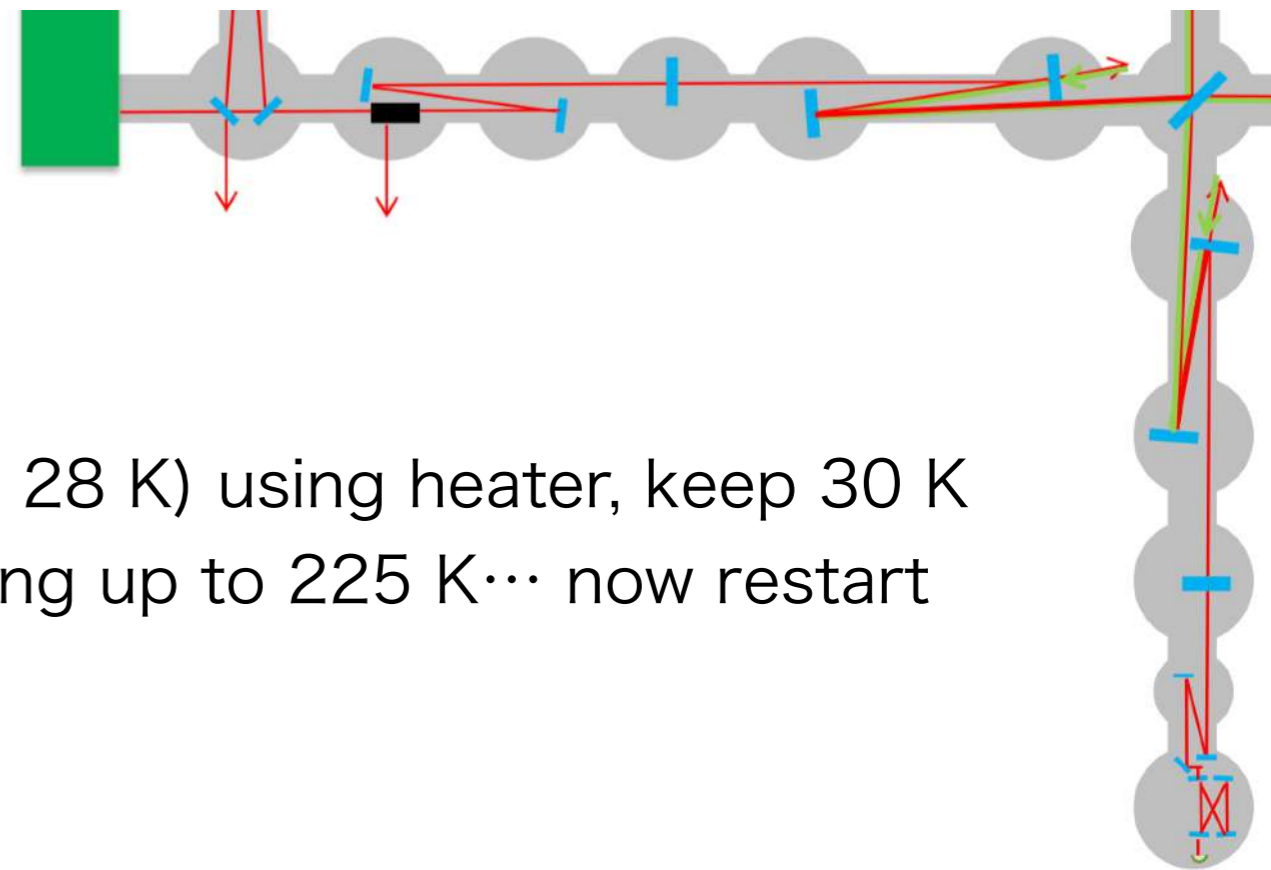


Backups

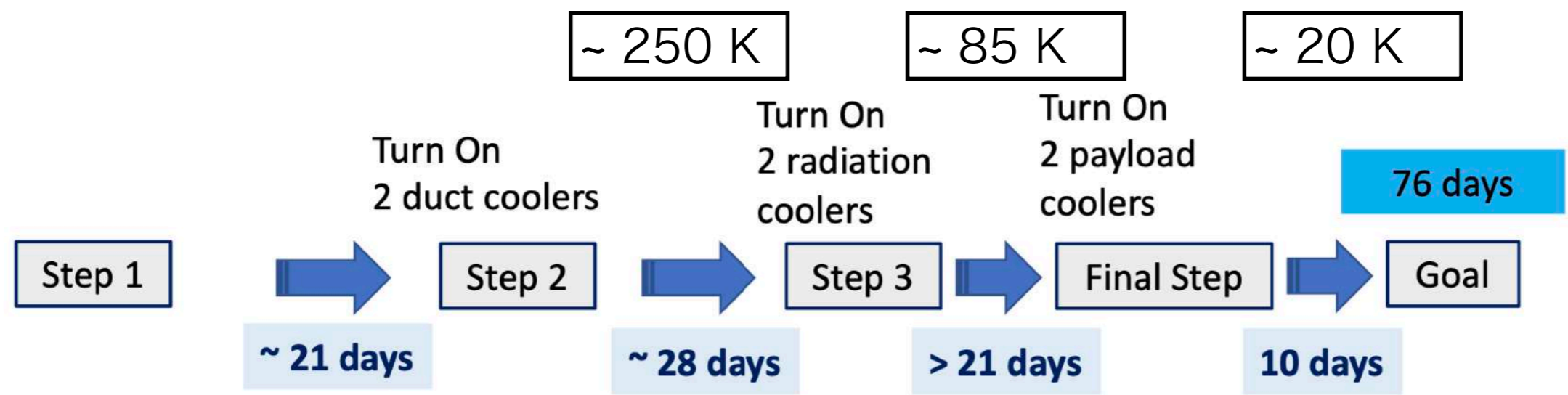
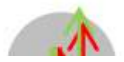




Cooling down



- Start Cooling down from end of July
 - EX : 85 K -> 20 K -> 30 K -> 225 K
 - Frosting occurred in 20 K (Nitrogen 28 K) using heater, keep 30 K
 - Maintenance of cooler : once warming up to 225 K... now restart cooling
- IX, IY, EY : 250 K -> 85 K
 - Discussing when cool down to 20 K



- ✓ Vacuum pumping
- ✓ Internal pressure <math> < 10^{-4} \text{ Pa}</math>
- ✓ No leakage >math> > 10^{-10} \text{ Pam}^3/\text{s}</math>

- ✓ Cooling down duct shields.
- ✓ Duct shields Temp. 90 K ~ 150 K
- ✓ Trap H₂O

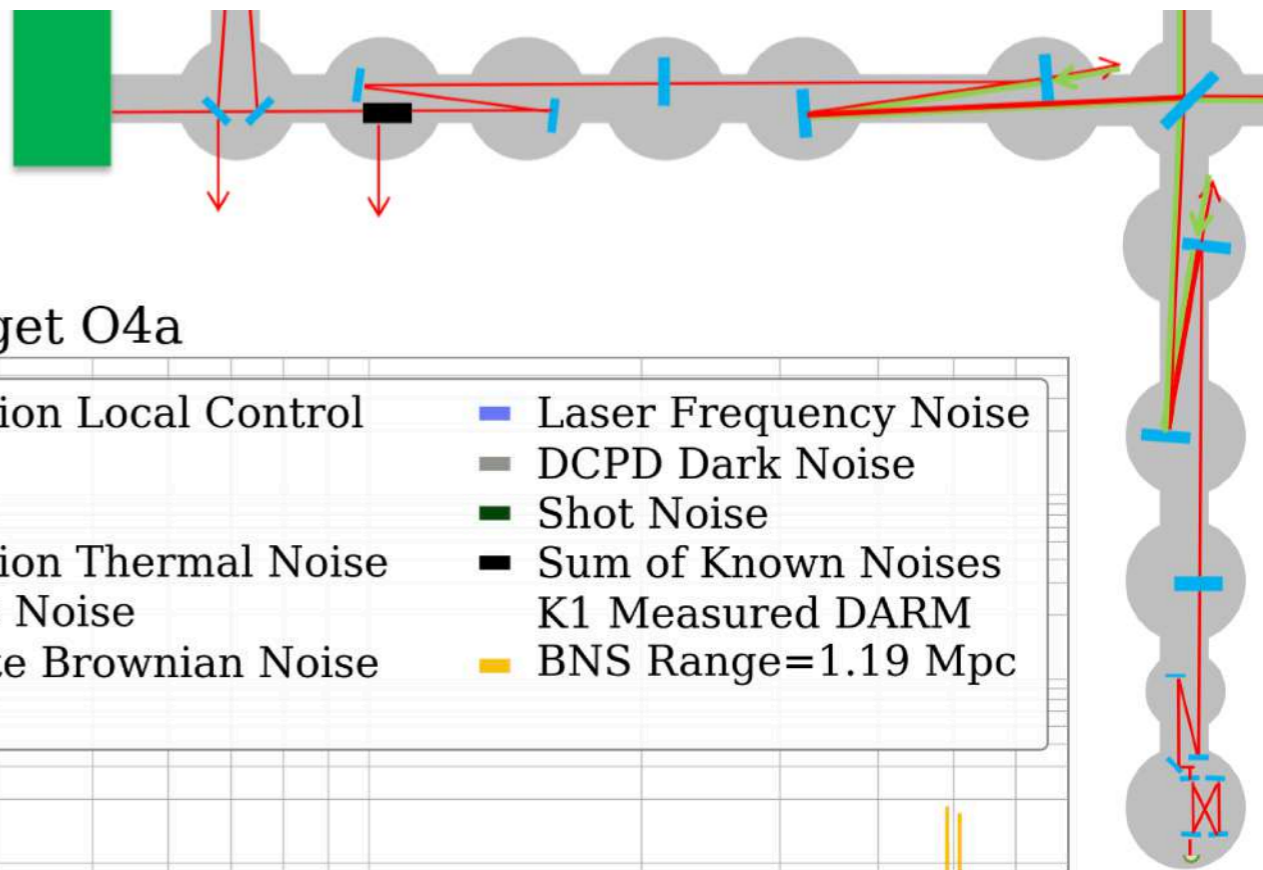
- ✓ Cooling down inner/outer shields
- ✓ Radiation Temp. 20 K ~ 30K
- ✓ Trap O₂ and N₂

- ✓ Cooling down Test Mass

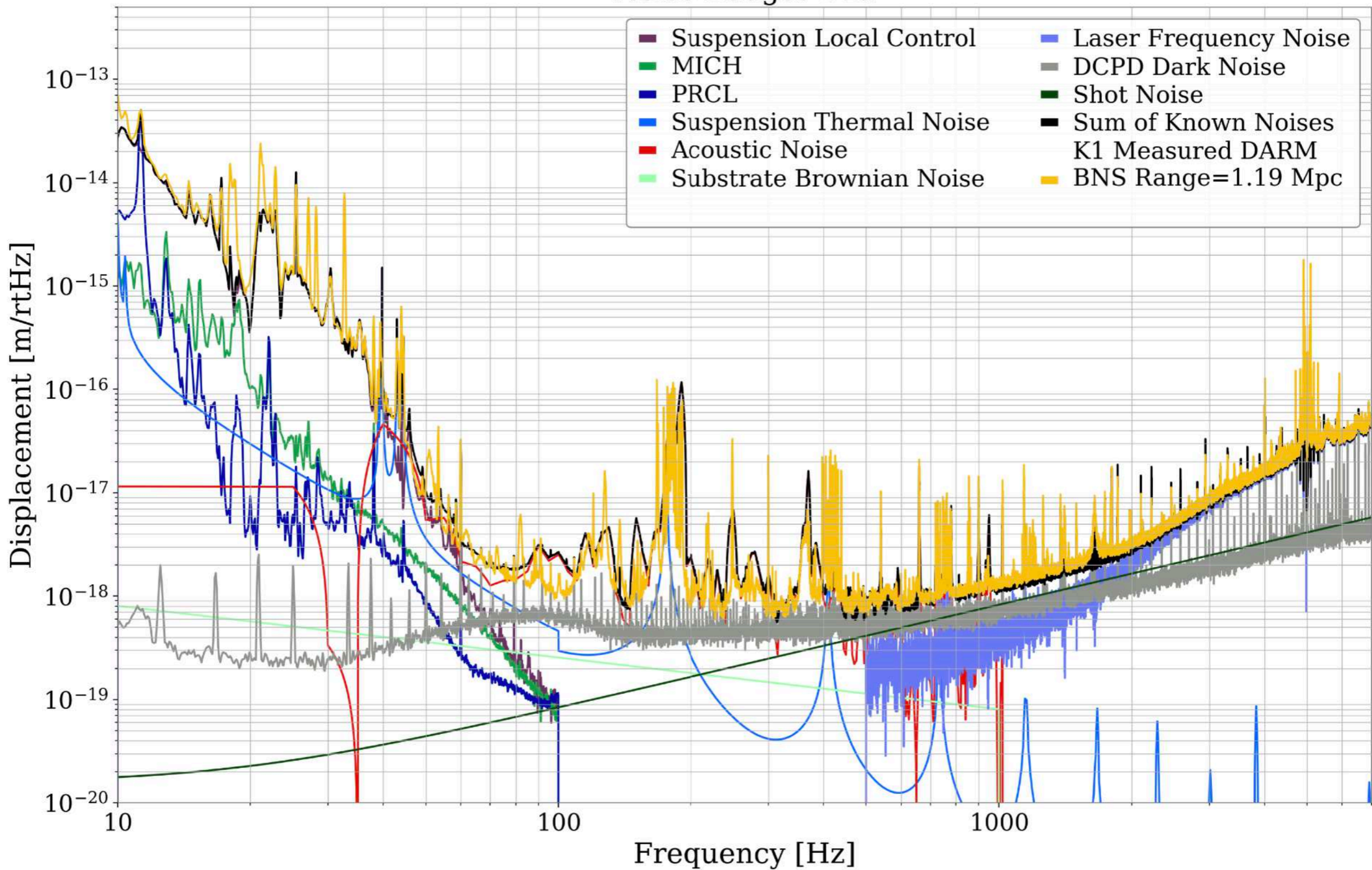
✓ T_{TM} = ~20 K



Noise budget O4a

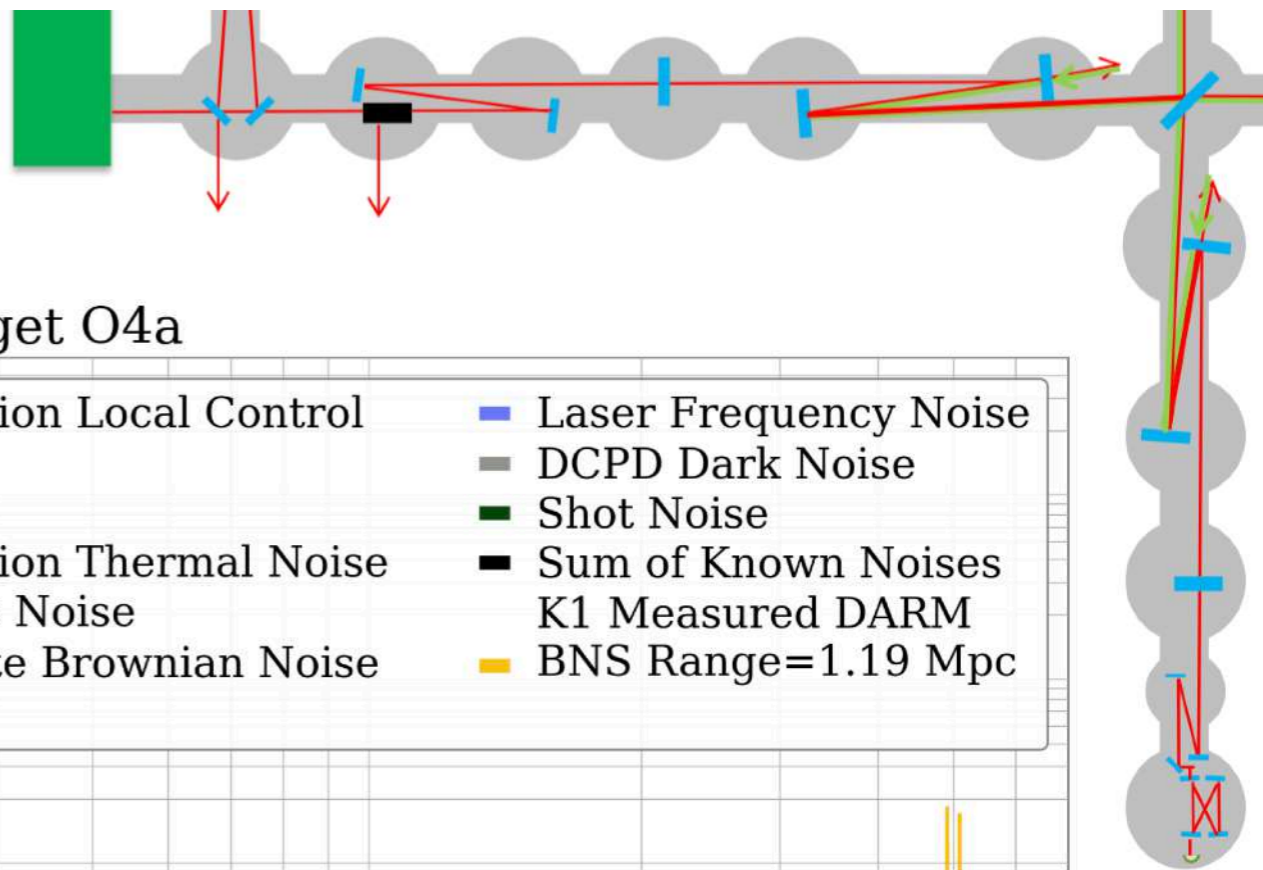


Noise Budget O4a

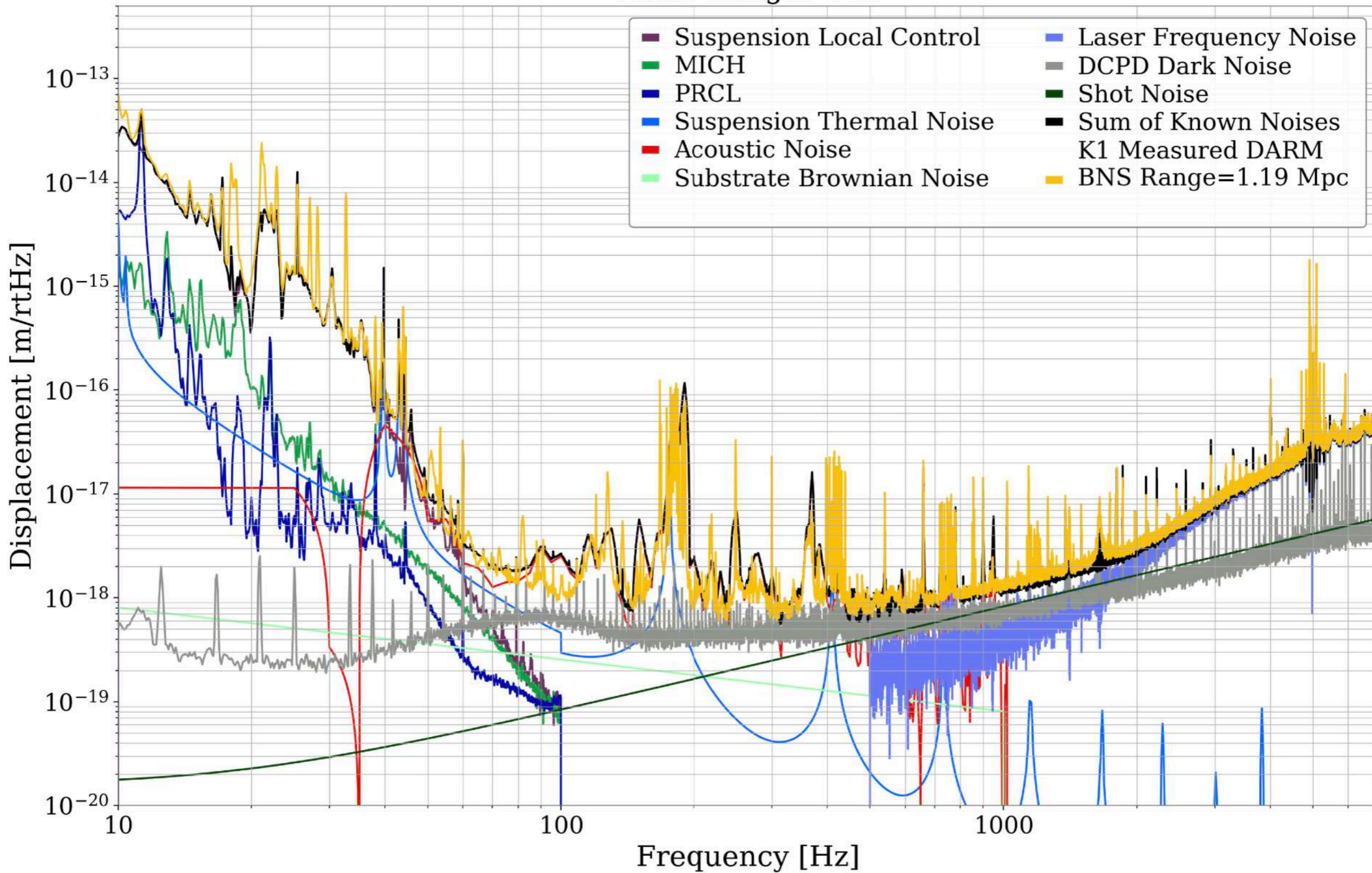




Noise budget O4a

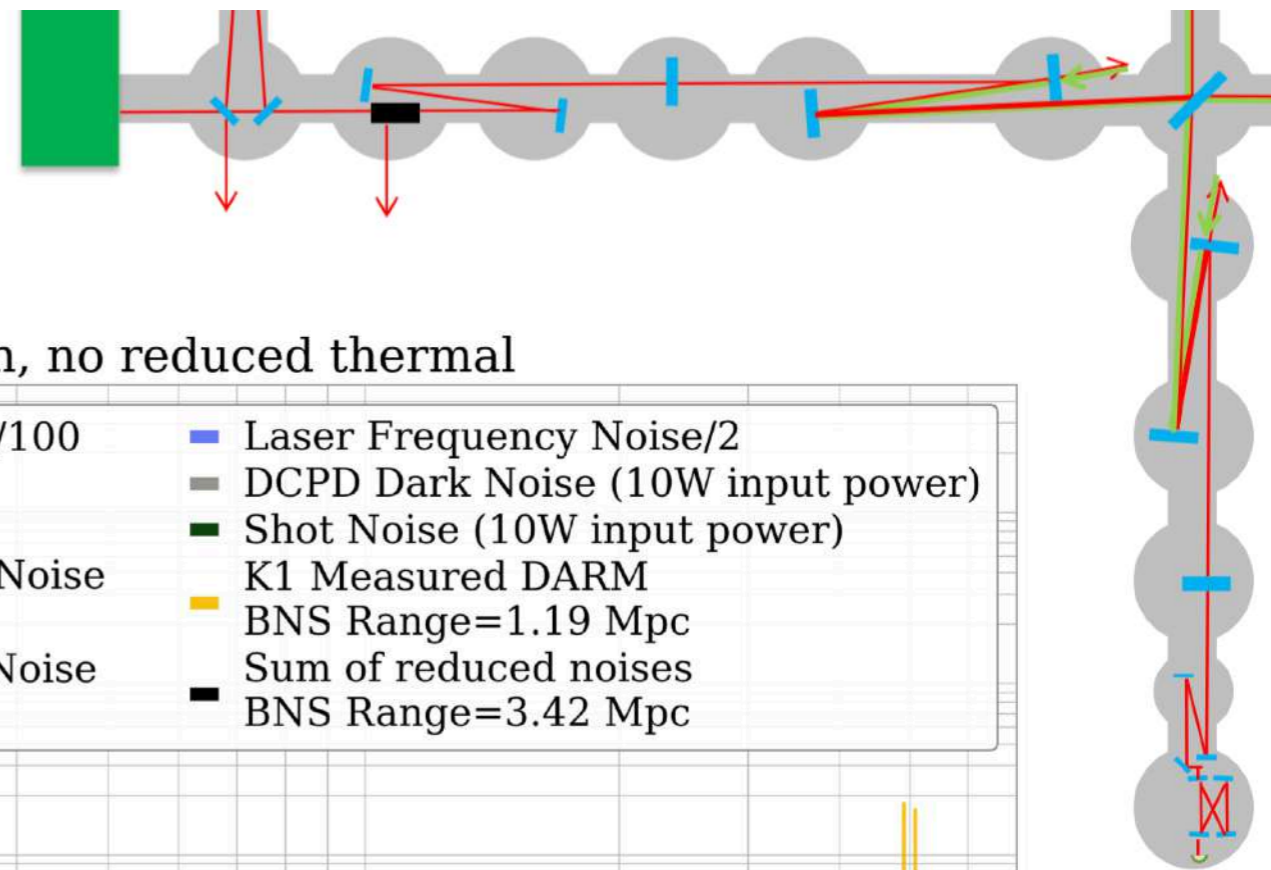


Noise Budget O4a

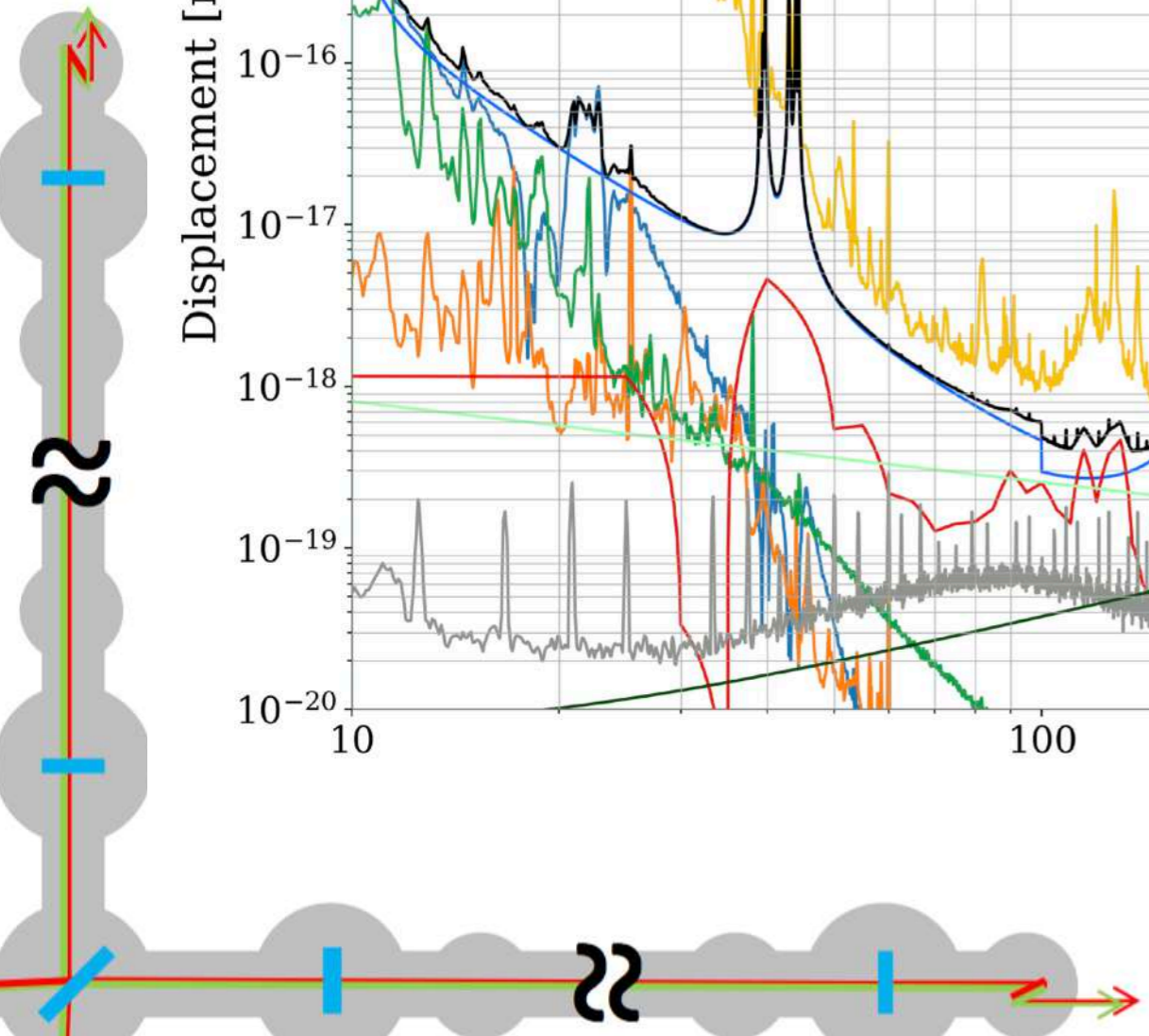
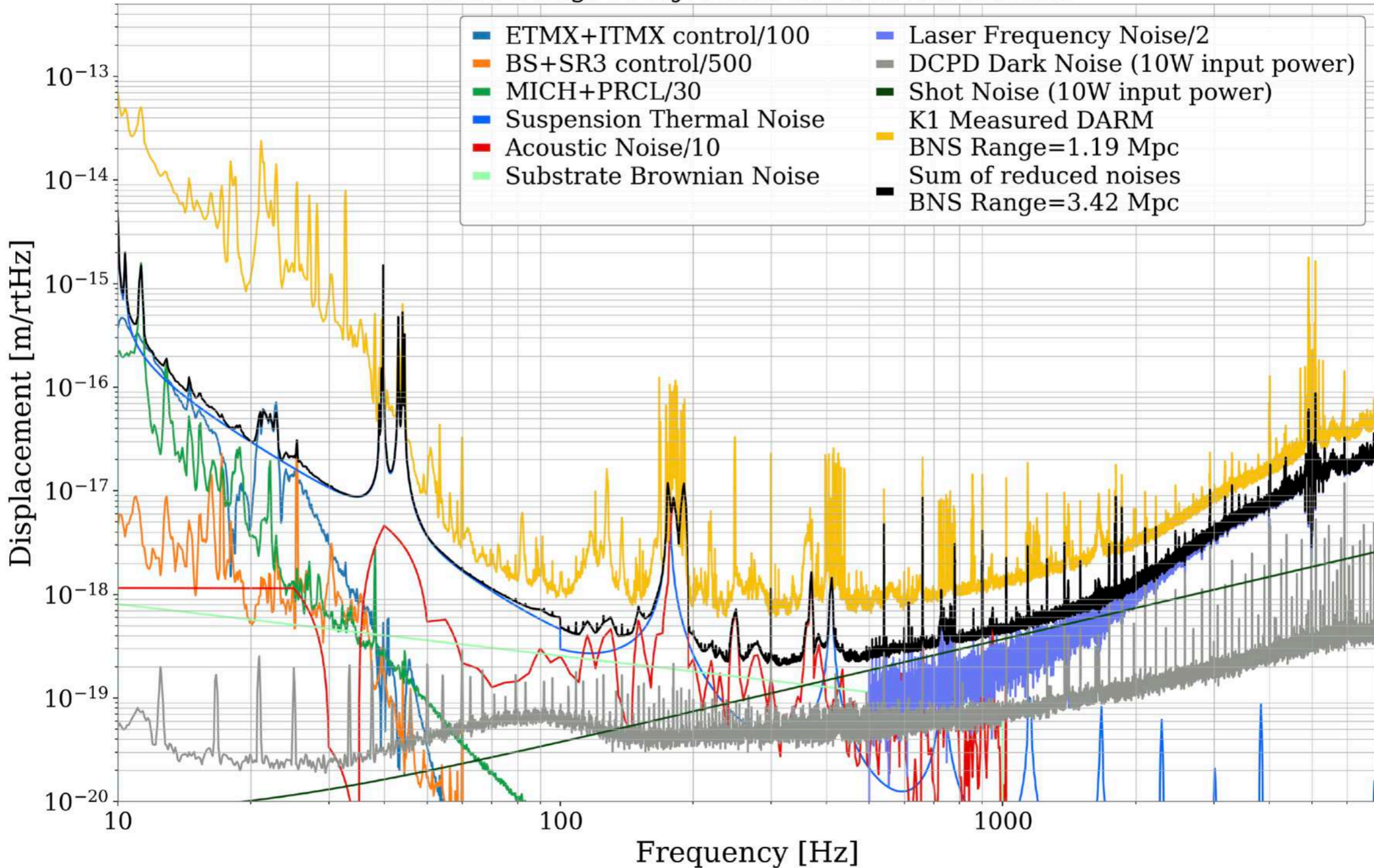




Strategy noise hunting

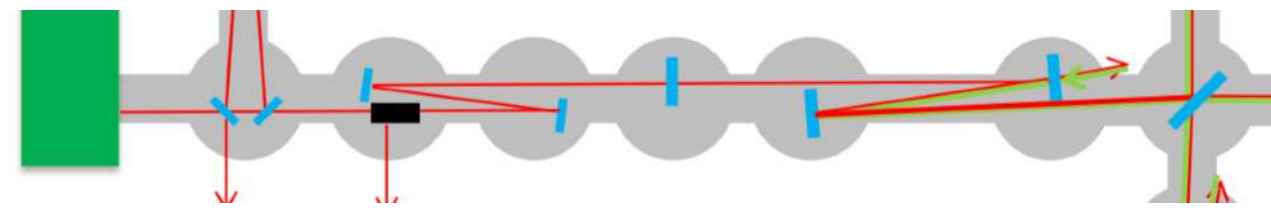


Noise Budget Projection, no reduced thermal





Strategy noise hunting



Noise Budget Projection, with reduced thermal

