

O4 GW Metrology discussion

NIST/PTB/LIGO

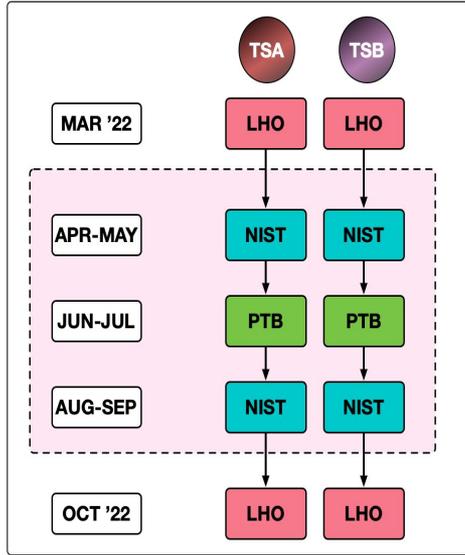
March 23, 2022

Agenda

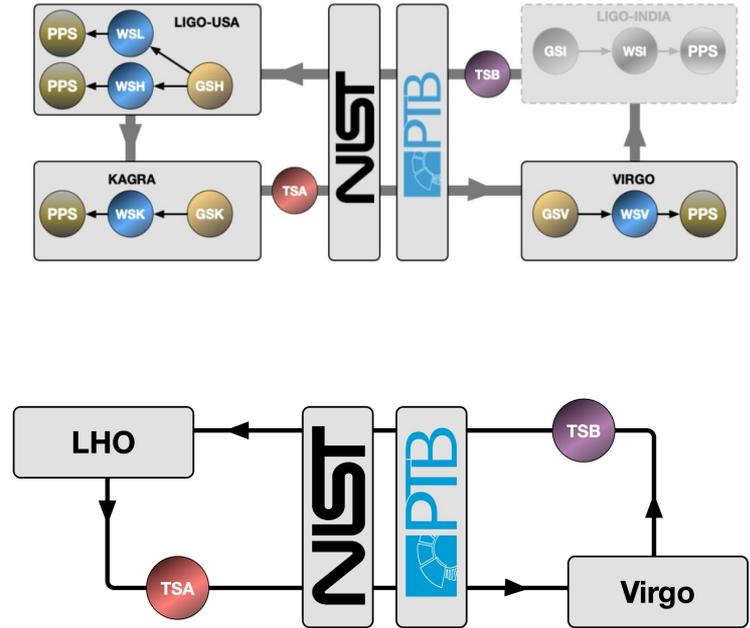
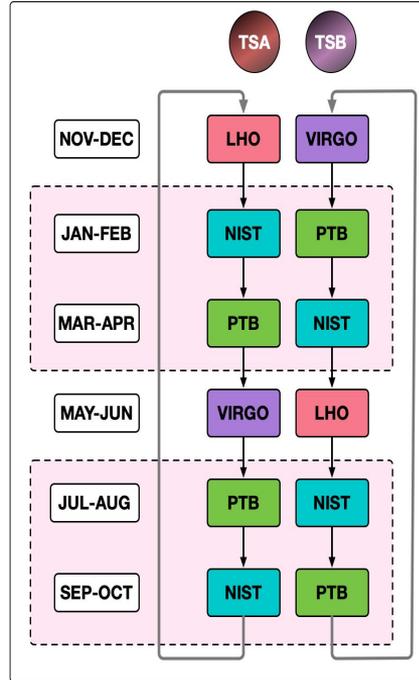
- Strawman plan/schedules
 - Bilateral comparison schedule
 - O4 calibration cycle schedule
- Status of preparation of the power sensors
 - Hardware upgrades
 - Temperature dependence results
- Logistics

Strawman plans/schedules

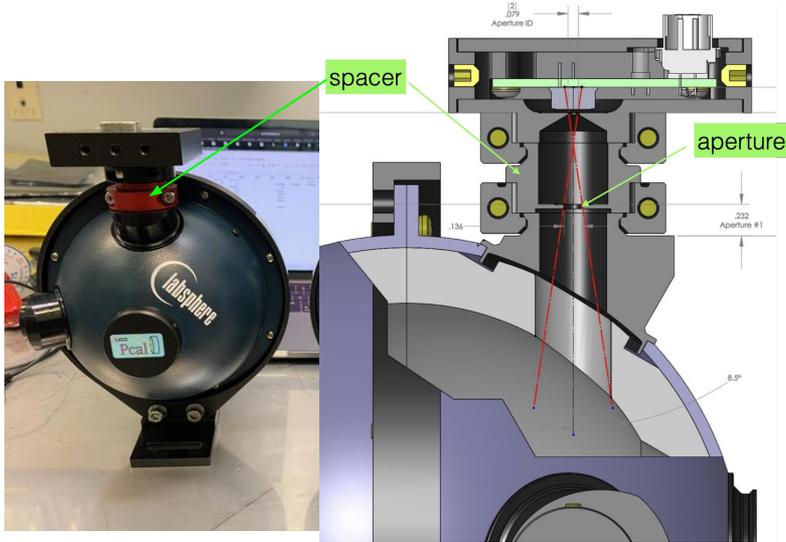
NIST-PTB bilateral comparison



O4 calibration scheme



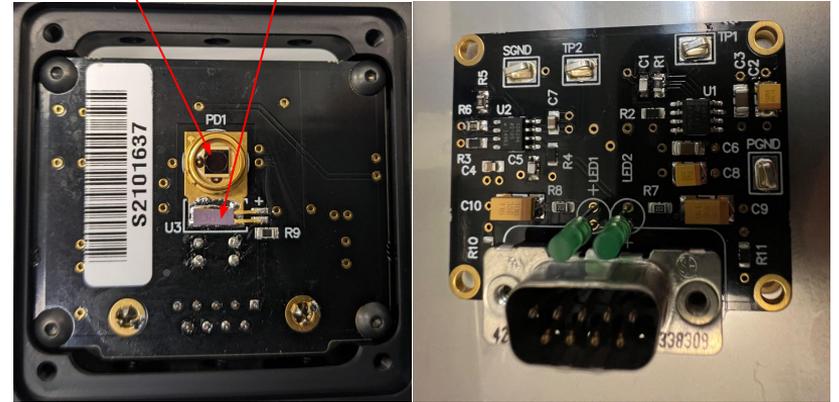
Hardware upgrades



New detector spacer to reduce temperature dependence

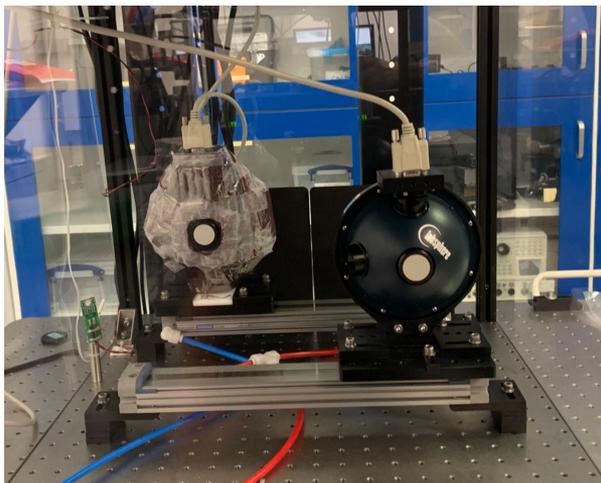
3 mm dia.
InGaAs
photodetector

AD590
temperature
sensor

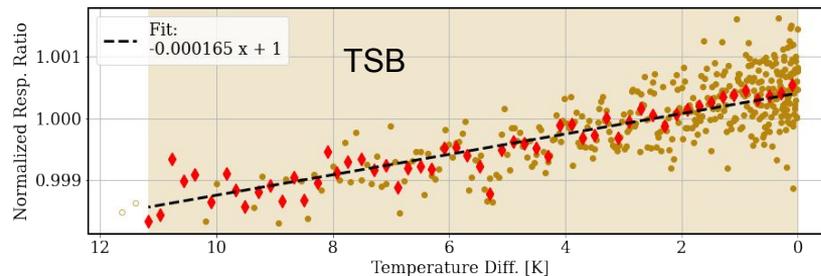
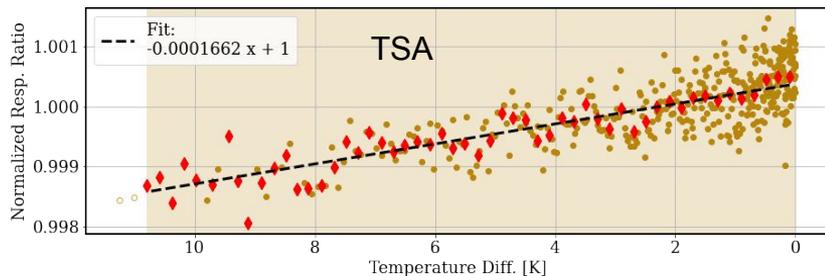
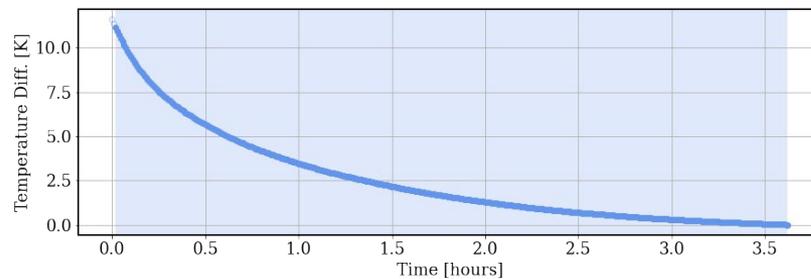
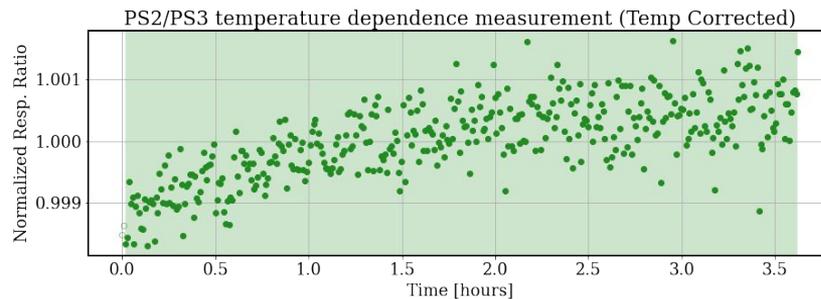


New PD board incorporating temperature sensor

Temperature dependence results



$$\frac{\rho}{\rho'} = 1 + \kappa(T - T')$$



Logistics

- Shipment of two sensors (TSA and TSB) to Matt at NIST (est. April 15, 2022)
 - Recipient, address, other paperwork required?
- Tune-up of 1047 nm laser for long-term loan to PTB (by May 1, 2022)
 - Loan paperwork, hardware recipient, shipping address
 - (Tuning up laser at NIST too?)
- Measurement reports
 - How will they be archived, analyzed, etc.