

Pre-Stabilized Laser

- ISS outer loop. Meets specs above 20 Hz (for 25 W input, at least), meas'd out-of-loop
- FSS. H1/L1 discrepancies resolved; final config for both.
- Ref cav transmitted power stability resolved.
- Intermediate power (35W) operation mode in place

Input Optics

- IMC mirror absorption measurements
- Complete noise model (including alignment)
- RFAM characterization
- Power control system complete

Suspensions

- Violin mode Qs meas'd (where feasible)
- Force-to-angle decoupling for all globally controlled suspensions
- Hierarchical control filters implemented
- Magnetic field coupling for test masses
- Local damping filters:
 - consistent across sites and suspension types
 - performance adequate for locking and noise reqs above 20 Hz

Seismic Isolation

- All ISIs under level 2 control
- Duty cycle criterion for above?
- HEPI: under position control (minimum)
- Duty cycle: no more than 2 WD trips per day per site
- Clear startup procedure

Thermal Compensation System

- HWS: sensitivity (incl. temp. cplg) established at the req'd level
- ITM ring heater profiles meas'd/verified with HWS
- CO2 projector: see T1300495

Optical Levers

- Establish utility for suspension F2A decoupling
- Long term stability documented for each
- Noise performance documented for each

Photon Calibrator

- Beam routing established/verified
- Absolute calibration provided (e.g., in force units)
- Stability characterization

Stray Light Control (incl. output Faraday)

- Verify that apertures aren't clipping

Interferometer Sensing & Control

- Functionality of all in-vac detectors
- Sensing gains measured (compare with calc.)
- Functionality of OMC control (length & alignment)
- Fast shutter operation

Core Optics

- Test mass internal mode Q measurements (sampling)
- Arm cavity losses:
 - scattered light meas'd with ACB diodes (calibrated)
 - Test mass absorption measured

Systems

- Automation/guardian milestones
- Improved watchdog system in place
- Recycling cavity mode matching meas'd/analyzed
- Characterize power budget: build up factors
- SIS simulation of full interferometer (w/ meas'd mirror maps)
- PEM: characterize environmental disturbances affecting locking
- Hydrocarbon partial pressure measurements for each volume
- DAQ: assessment of archived data rate