


Status of GEO600

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for the GEO600 team

LSC meeting

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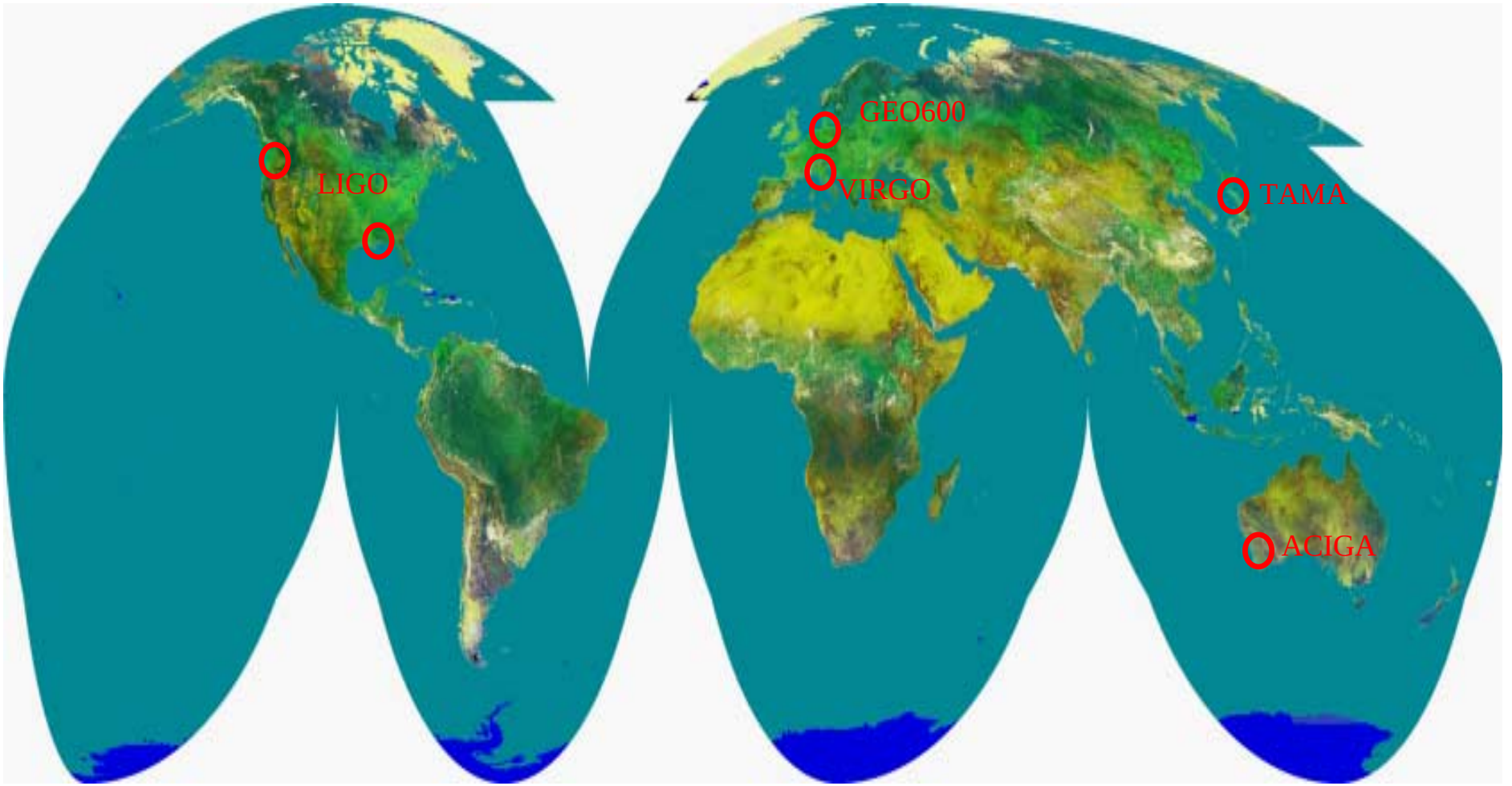
LIGO-G010311-00-Z

data exchange LIGO – GEO

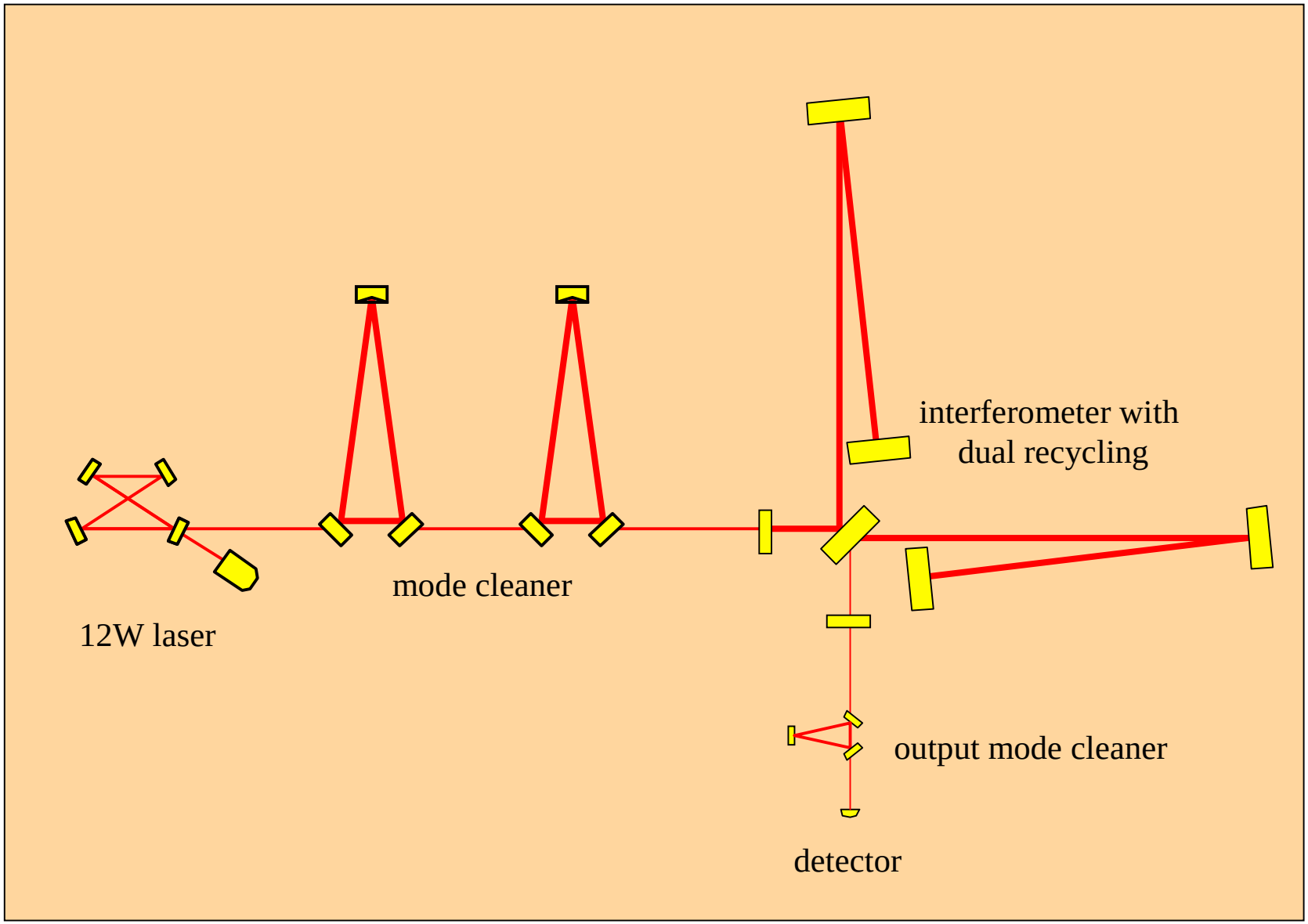
- data exchange MOU between LIGO and GEO was signed
- GEO Data will be available for LSC members for data analysis
- LIGO and GEO will coordinate dates of engineering runs and data runs
- first coincidence run: upper limit run end 2001

where is GEO600

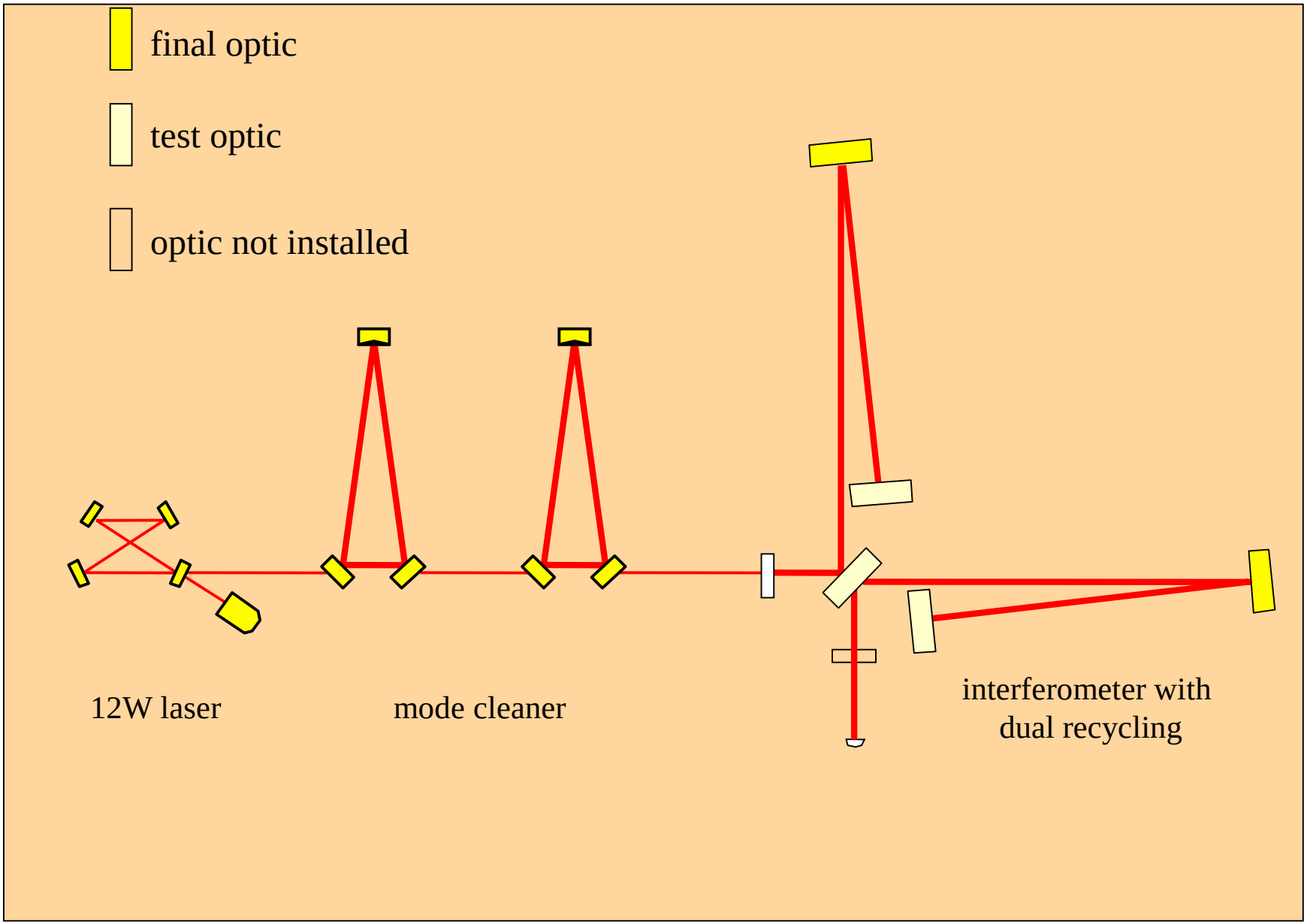


GEO 600 Site

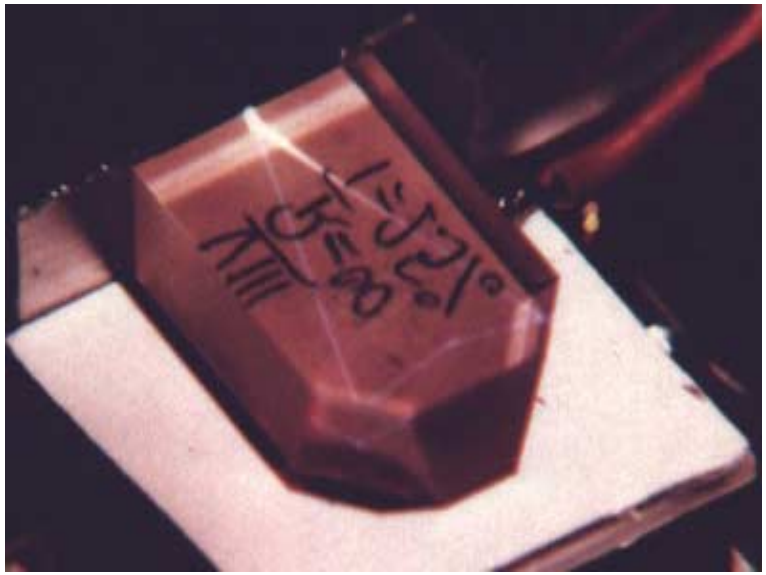
optical layout

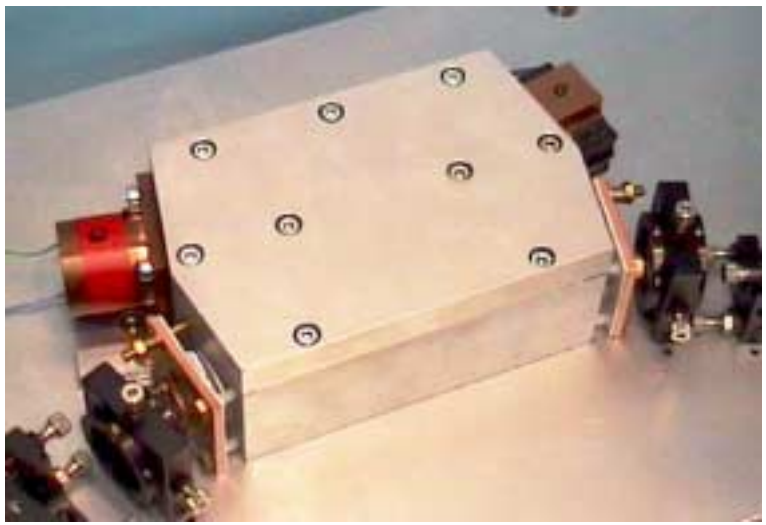


installation status – Aug 01



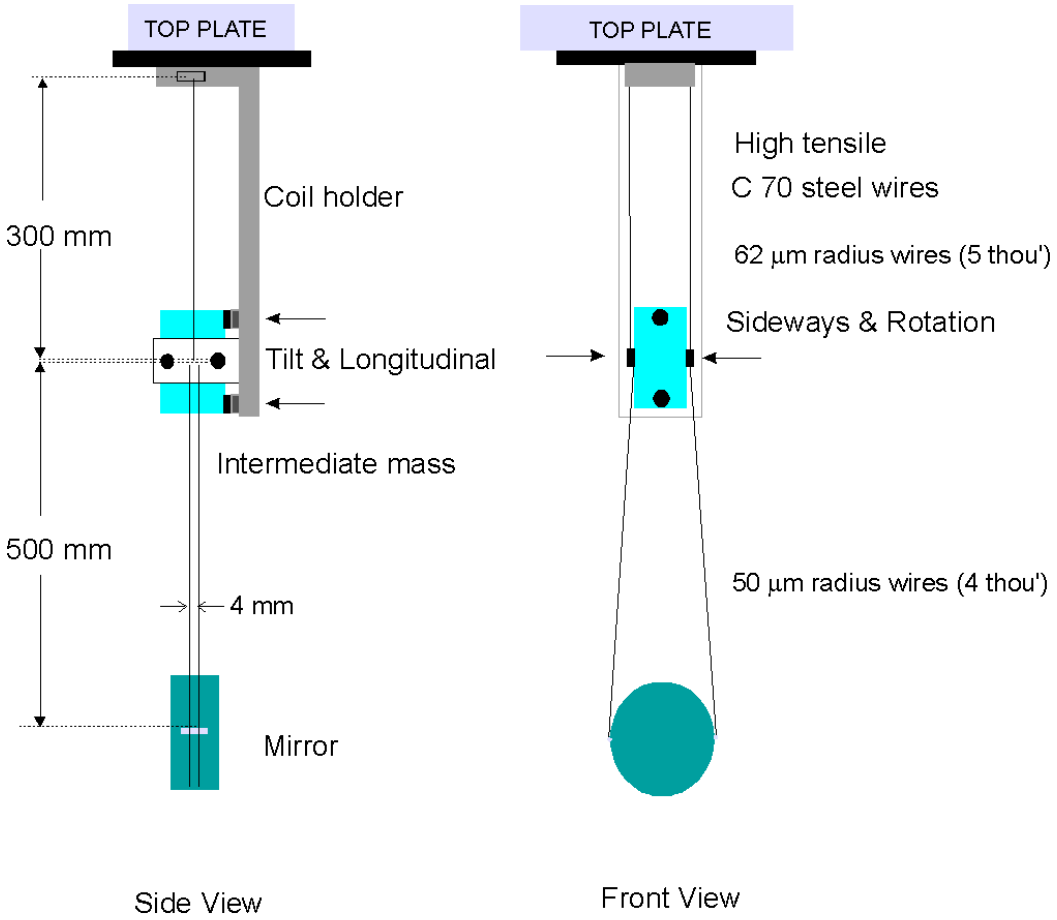
12W injection-locked laser-system

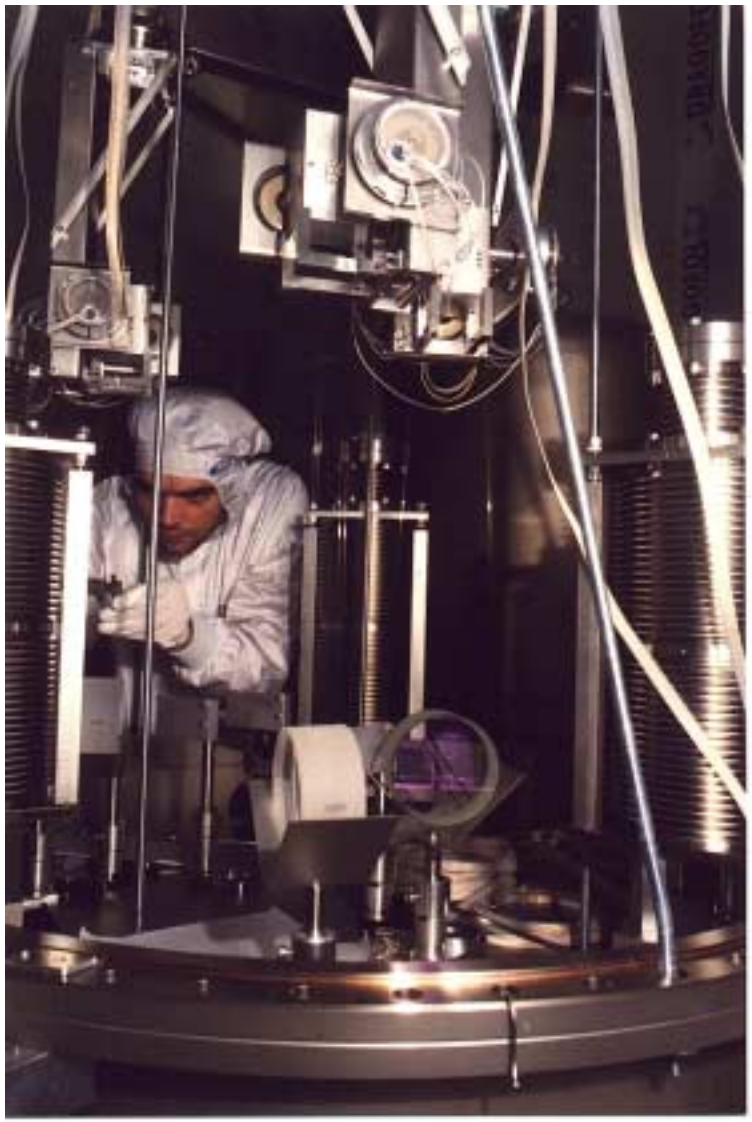




- NPRO (non-planar ring oscillator) master laser, output power: 800mW
- slave laser optical components mounted on rigid resonator-spacer (Invar)
- 12W output power (< 5% in higher TEM modes)
- injection-locking stable over days

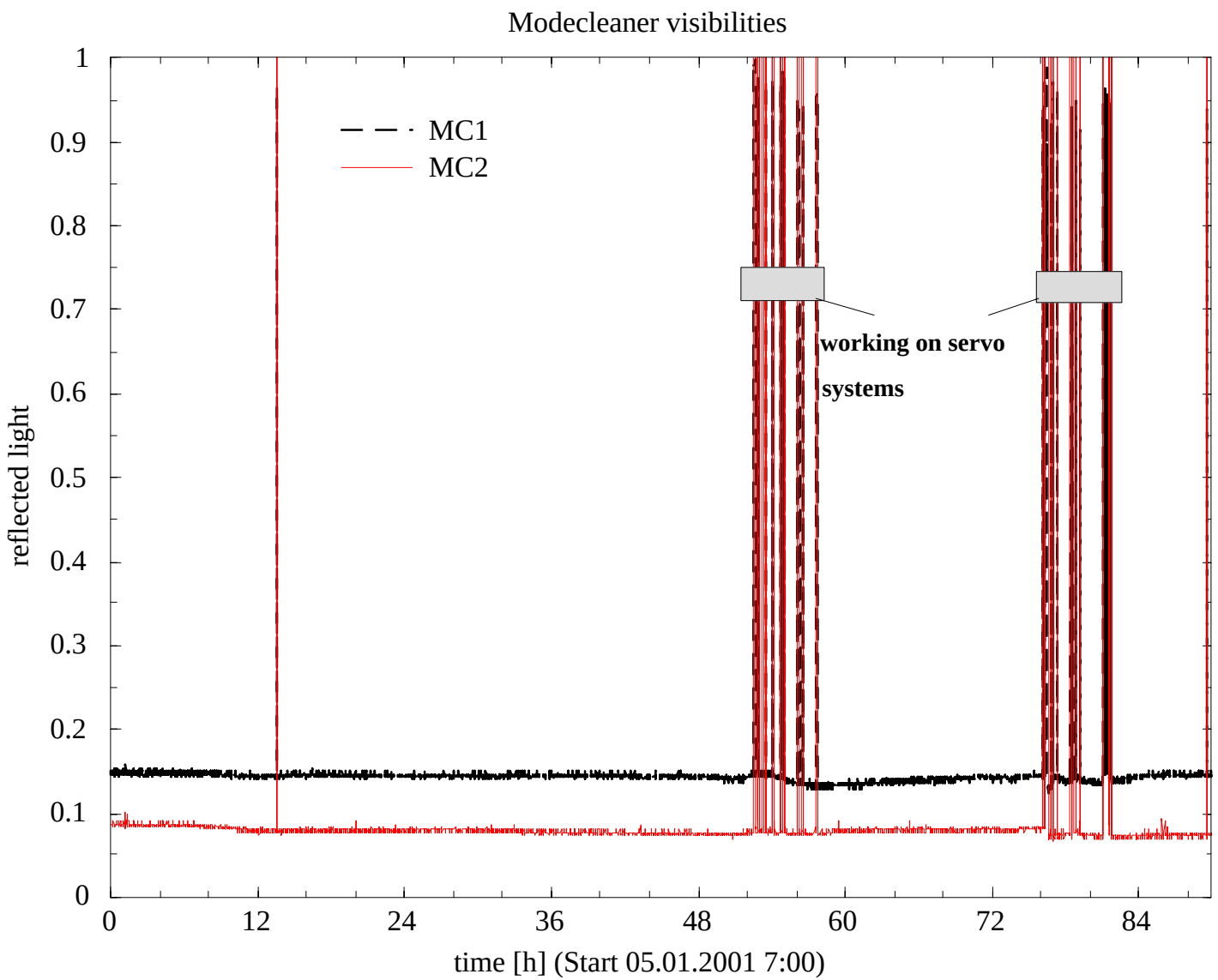
modecleaner suspension





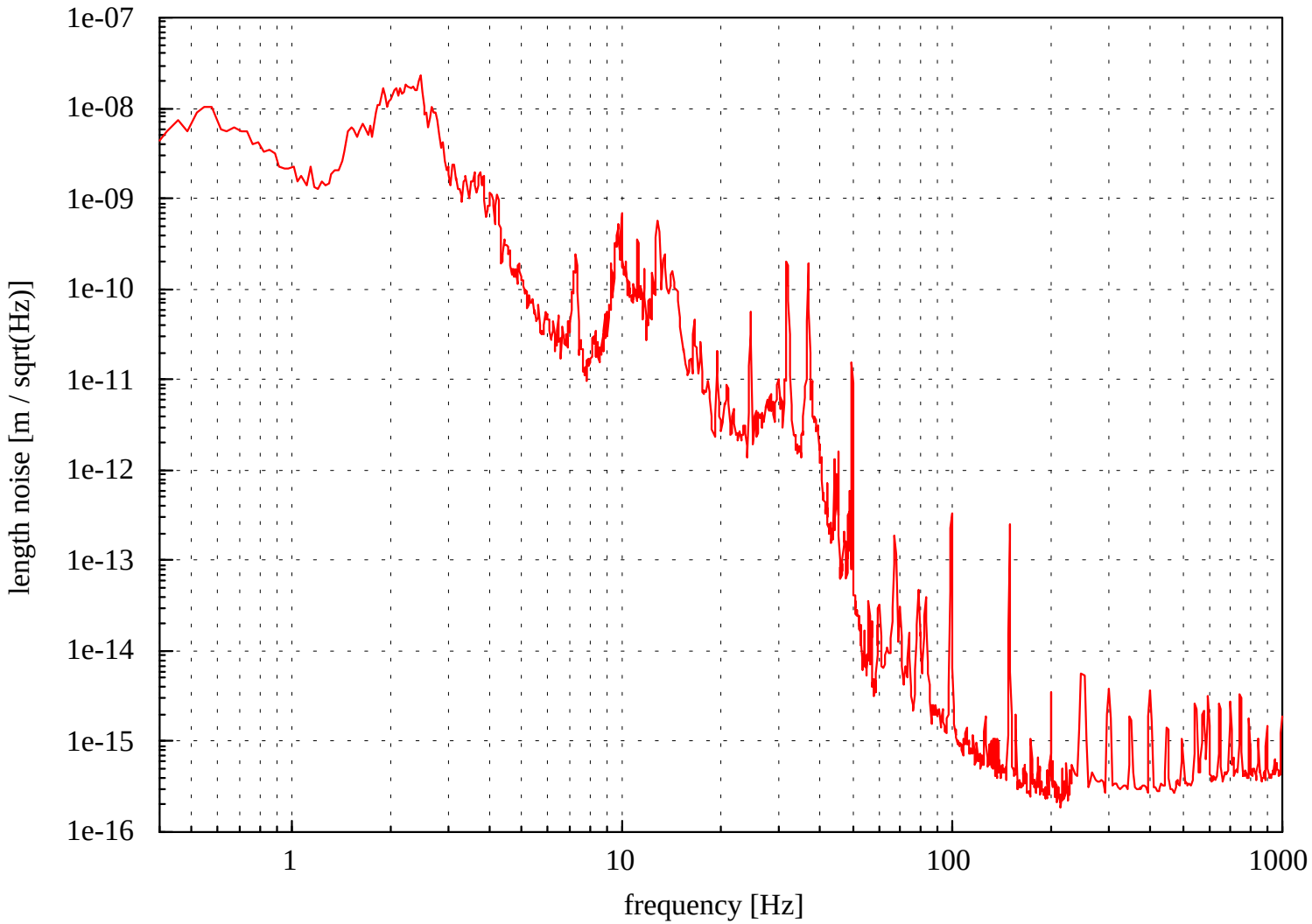
Schematic of Modecleaner suspension

longterm behavior GEO600 modecleaner



differential length noise

laser locked to 1st modecleaner, measured feedback to 2nd modecleaner



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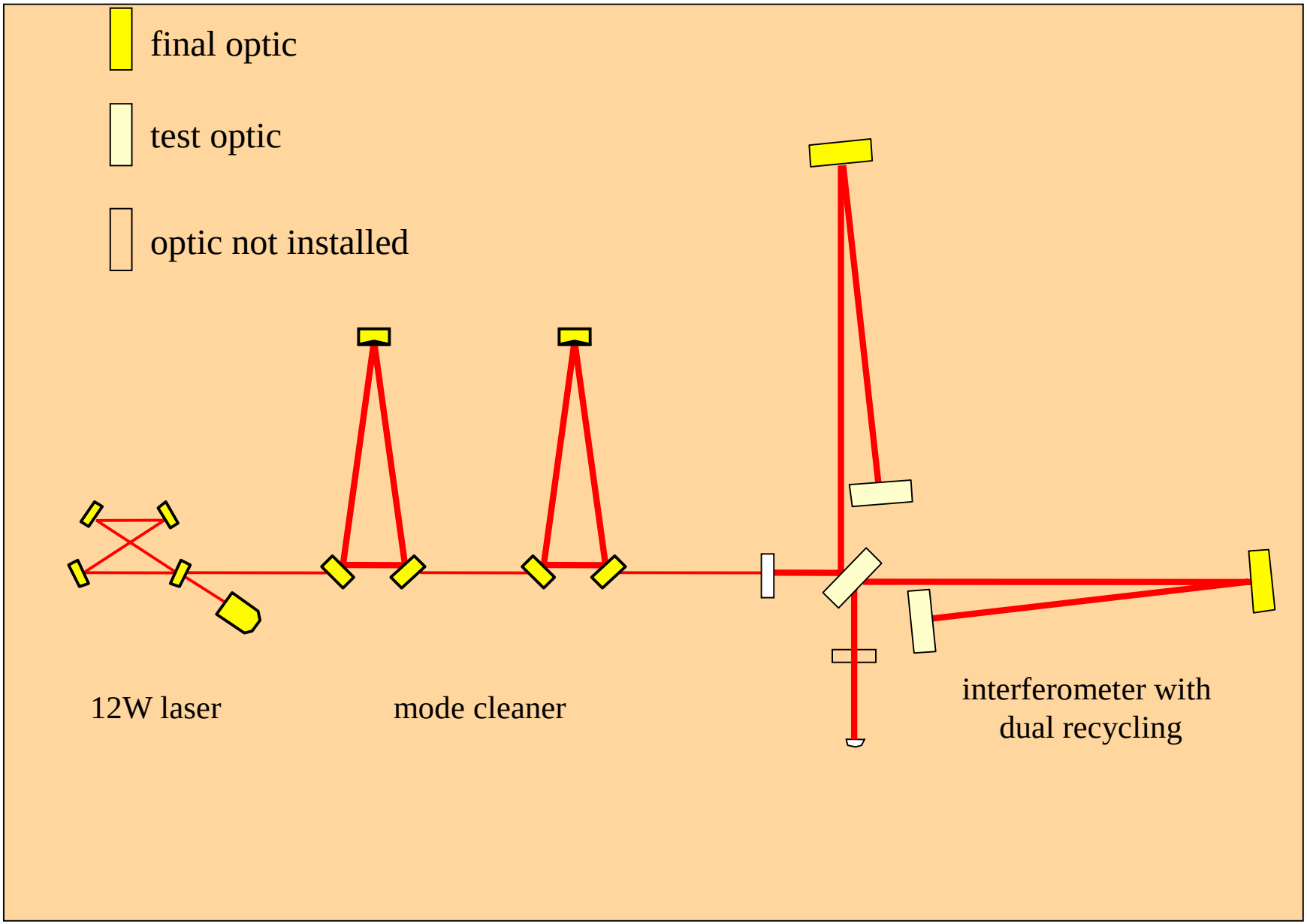
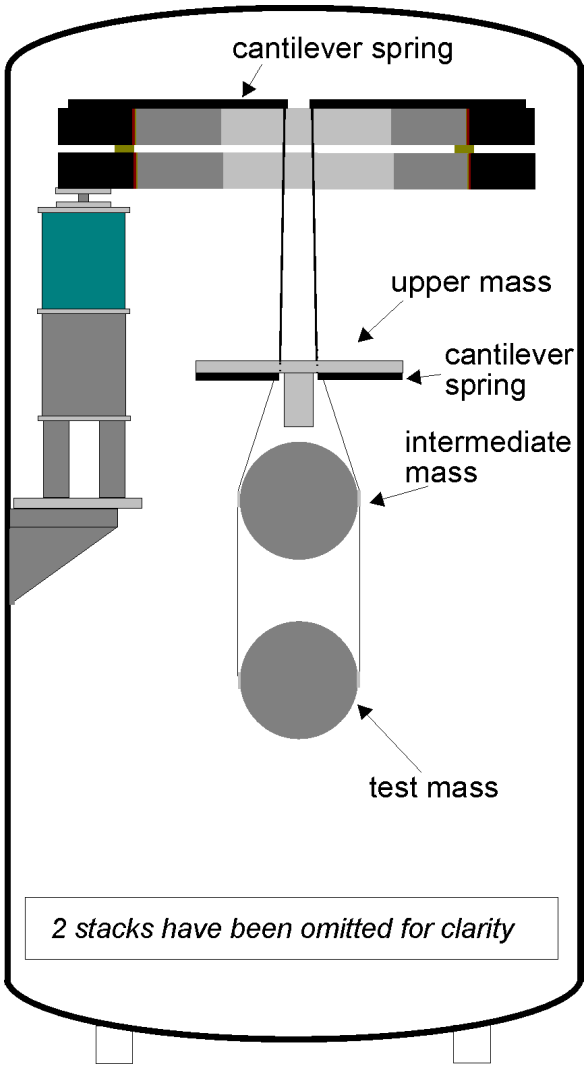
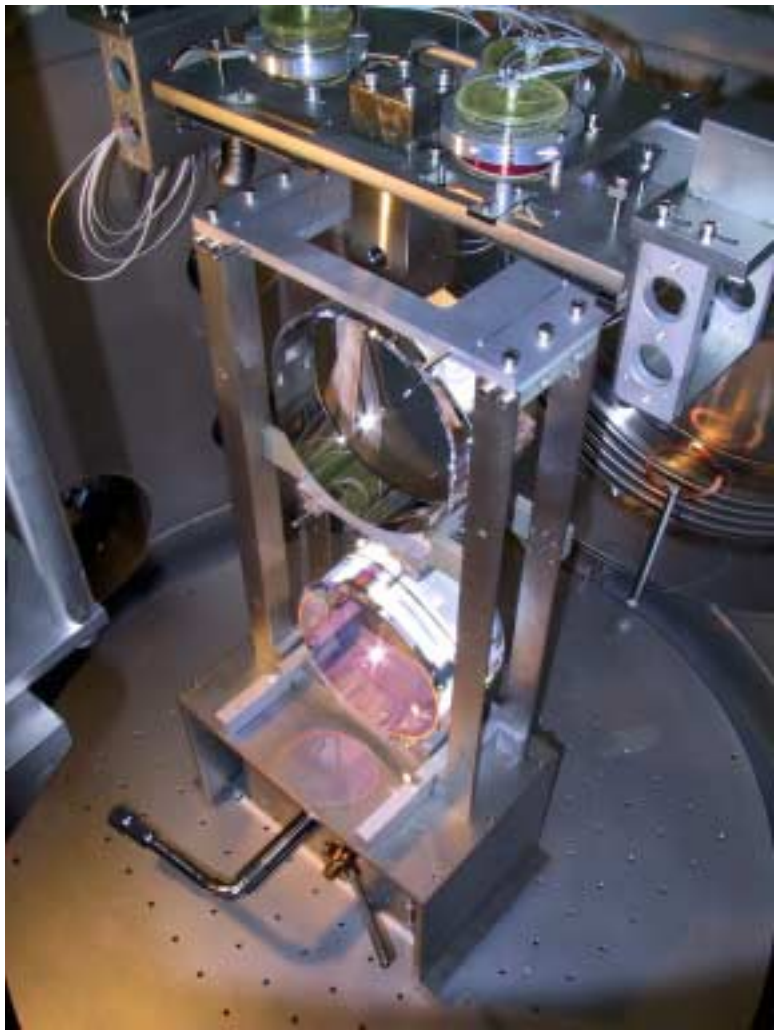


GEO triple pendulum suspension





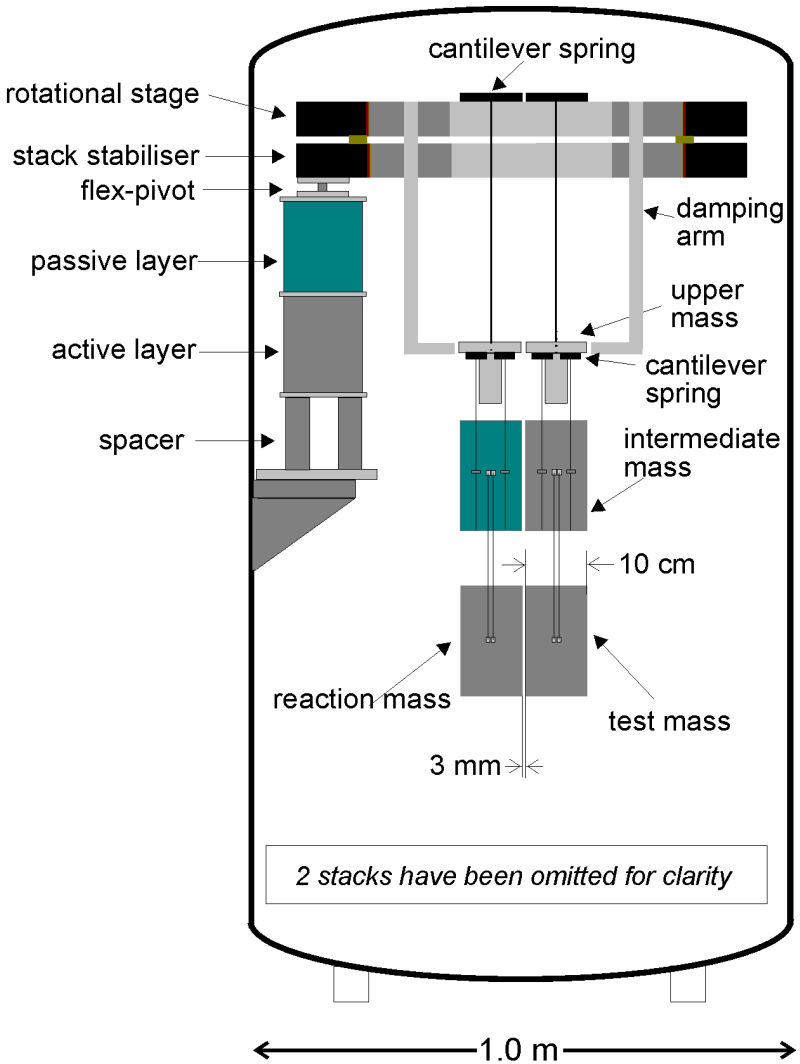
monolithic suspension - details

intermediate mass with prism

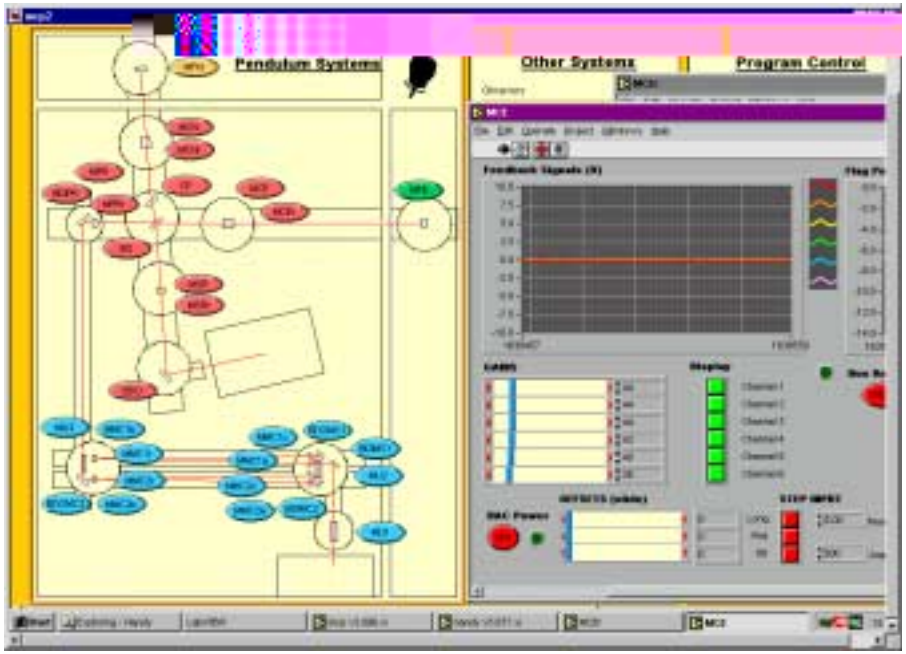
mirror

side view

GEO triple pendulum suspension



System Control & Data Acquisition



- LabView guided analog control systems and lock acquisition
- LabView system acquires low sampling rate channels

- VxWorks/Tornado based DAQ
- Up to 64 channels 16384Hz, 16bit
  64 channels 512Hz

status - detector

- laser and modecleaner operate reliable and stable
- power recycled michelson expected to lock within the next weeks
- next steps depend on first noise spectrum, michelson behavior and the schedule of coincidence runs with LIGO
  Options:
  - install signal recycling mirror
  - enhance power recycling factor
  - exchange beam splitter and/or inboard mirrors to final optics

status - data

- DAQ system problem solved, ready to write frame files
- detector characterization effort started to provide input for the quality channel and data conditioning
- event and veto database system under development
- LDAS versus stand-alone-code environment for data analysis under test

summary

- data from a fourth detector will be available for LSC members for data analysis
- we should try to have the highest possible compatibility between data formats
- data taking between LIGO and GEO will be coordinated to get as much coincidence time as possible