

Advanced Interferometer Configurations Highlights

Goal: coordination of research toward
detector upgrades

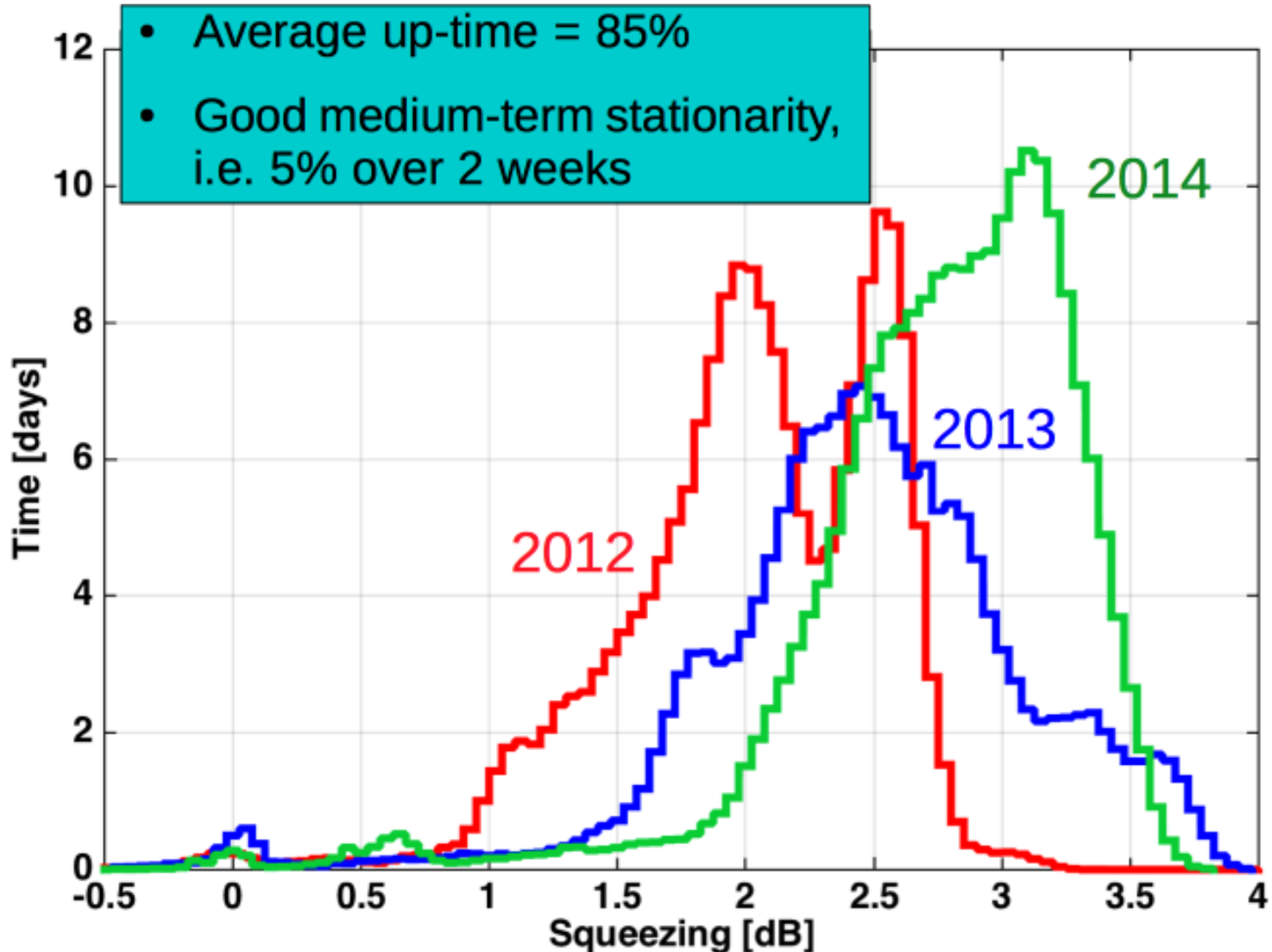
➔ Voyager/Explorer (just covered by Stefan)

L. Barsotti

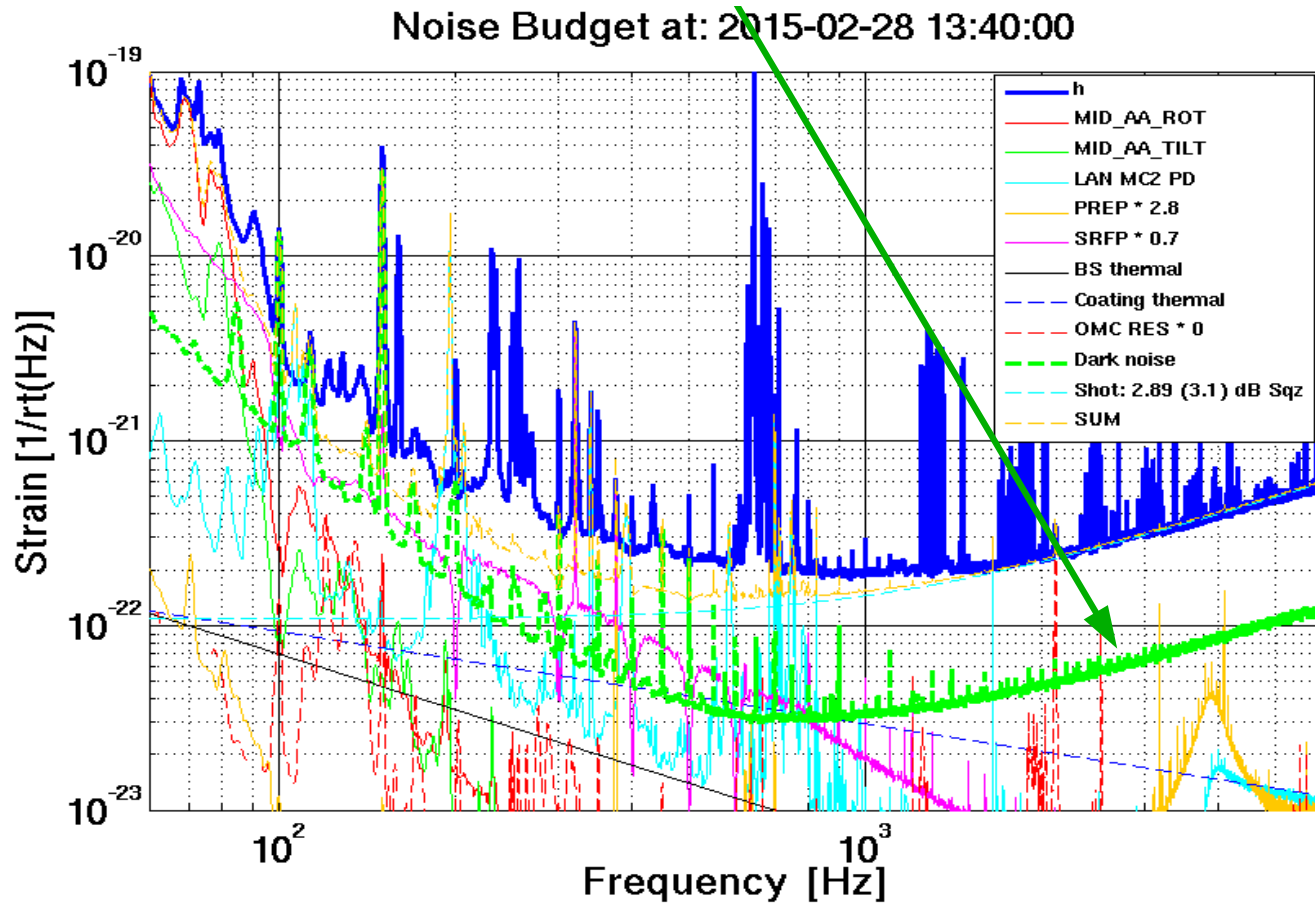
This parallel session focused on
near term upgrades of advanced detectors

- ✧ Effort is ramping up both in the LSC and VIRGO (Jean-Pierre Zendri, [G1500314](#))
- ✧ Goal: be ready for squeezing injection
 - ✧ “risk mitigation” for high power
 - ✧ improvement beyond design sensitivity

3+ years of squeezing @ GEO (Kate Dooley, [G1500257](#))



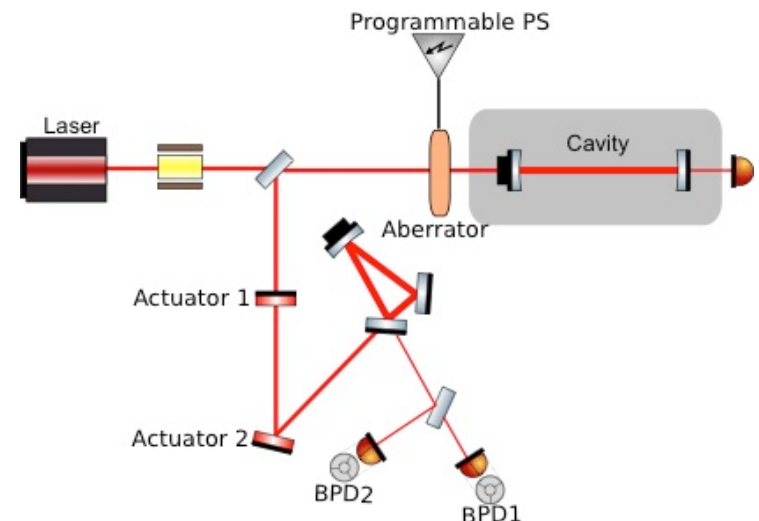
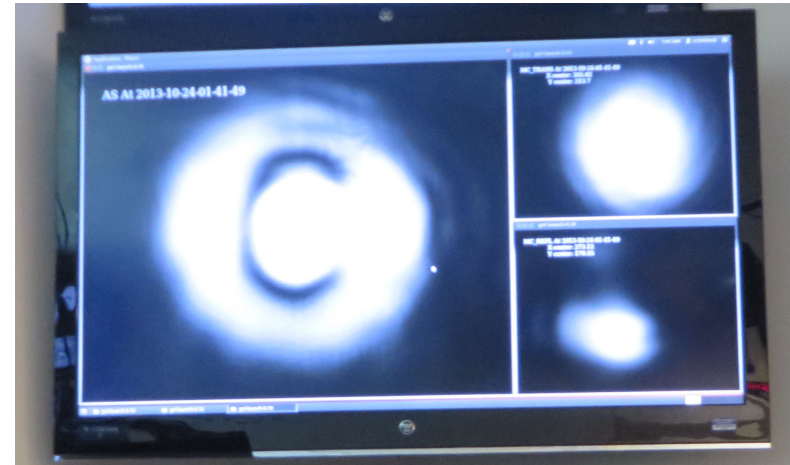
Low noise electronics (Hartmut Grote, [G1500371](#))



Active Wavefront Control ([G1500372](#))

Aidan Brooks, Paul Fulda, Antonio Perreca

- ✧ We want to correct mode-mismatch between the MANY interferometer optical cavities
- ✧ Critical for maximizing benefit from squeezing
- ✧ Need sensors and actuators complementary to the thermal compensation system
- ✧ Experimental set-up at Syracuse University to investigate options for sensor/actuators



Modern Control

(Rana Adhikari, [G1500386](#))

- ✧ Many control problems faced by GW detectors could use more sophisticated control techniques than “by hand tuning” of feed-back loops
- ✧ Optimal feedback design and methods
- ✧ Open area of research

Glasgow Sagnac Experiment (S. Steinlechner, [G1500358](#))

