

L1500052-v1

Thermal Noise Workshop Agenda (draft 2015-03-26)

Tuesday: 09:00-10:30 Session A: Thermal noise solutions adopted in 2G detectors (aLIGO, aAdV)

Targets: very short term upgrades?

- 20'talk on Advanced detectors solutions for low thermal noise suspensions: o Current solutions and their limitations

- o Short term upgrades

- o Open questions

- 20'talk on Advanced detectors solutions for low thermal noise test masses: o Current solutions and their limitations

- o Short term upgrades

- o Open questions

- Discussion on performances, limits and possible small improvements

Tuesday: 11:00-12:30 Session B: Thermal noise modelling

Targets: is our model of the thermal noise complete? Are Non-Equilibrium effects significant?

- 20'talk on modelling the thermal noise: o Current models and their implementation in GWINC

- o Limitations and possible improvements

- o Open questions

- 20'talk on thermal noise and Non-Equilibrium effects: o What's that?

- o Why it does matter?

- o What we need to know?

- 20 min of bottom-up talk?

- Discussion

Tuesday: 16:00-18:00 Session C: Cryogenics and materials

Target: cryogenic detector, where we are and what are the needed R&D?

- 20'talk on Cryogenic interferometer technologies: o Operative temperature: 110K or 10/20K?

- o Cooling technologies vs cooling time

- o Status of the art and needed developments

- o Open questions

- 20'talk on Materials for suspensions and test masses in a cryogenic detector o Are we able to realize a cryo interferometer?

- o Is really silicon an alternative to sapphire (feasibility, noises)

- o Open question

- 20'talk on Optical Absorption on substrates: o What we know about optical absorption in crystalline test masses?

- 20'Bottom-up talk

- Discussion

Wednesday: 09:00-10:30 Session D

D.1) To be less sensitive to the thermal noise: Optical solutions

Targets: are flatter beams a possible solution?

- 20'talk on High order mode beams o Status of the research, last achievements
- o Open questions and future directions

- 20'discussion

D.2) Coatings:

Targets: Do we have valid solutions for the HR coatings in future detectors? What are the technical / engineering challenges e.g. associated with larger mirrors?

- 20'Review talk on the status of the art and known limitations
- Discussion

Wednesday: 16:00-17:30 Session E: Coatings (cont.)

- Bottom-up talk on coatings
- Discussion

Wednesday: 18:00-19:00 Session F: Summaries

- Summarizing
- Preparation of a R&D white book: what is progressing and what is needed to progress
- Planning