

ISC Modeling Meeting

Aug 24th, 2012

Length Modeling – Status (perfect optical system)

✧ Lentickle (Optickle based - Nic)

✧ Several people working (or worked, or plan to work) on it:

✧ “Rough” noise budget for full IFO @ 25W, new SRM 35% - **Matt**

✧ Amplitude modulation noise coupling - **Keiko**

✧ Intermediate optical configurations (sensing matrices, noise budget) – **Anamaria**

✧ 40m noise budget - **Jenne**

✧ What’s missing? All main sources for noise budget? Realistic seismic and suspension TFs? Include diode to ADC path (whitening) ? Hierarchical control? What did we learn from eLIGO simulation VS measurements?

ASC Modeling (perfect optical system)

- ✧ Full IFO: noise budget for aLIGO design – **Lisa**
 - ✧ Need to document the new SRM 35% @ 25W
- ✧ IMC Alignment Sensing and Control? Need a model for that?
- ✧ DRMI ASC?
- ✧ Same as for LSC: Include diode to ADC path (whitening) ? Hierarchical control?

Imperfect optical system

✧ Hiro et al @ Caltech

- ✧ As-built aLIGO optics: mirror surface aberration
- ✧ TCS simulation for one arm test
- ✧ Stray-light calculations

✧ Andreas et al @ Birmingham

- ✧ Beam distortions, losses, higher-order mode effects –
Finesse based

Tools Improvements

- ✧ Finesse: code development for including radiation pressure, mirror surface maps – Andreas et al.
- ✧ Graphical interface for Optickle and Finesse-Jan