AdLIGO ISC Overview

P Fritschel

Mar 2007 LSC meeting

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Current ISC activities

- Modulation scheme: Kentaro, Osamu, Rana, Kirk
  - Are we ready to adopt the new scheme?
- Alignment sensing
  - WFS calculations: Valera, Guido
  - ASC requirements: Rana
  - Quad diode characterization: Rich, Sam, PF
- Arm cavity acquisition & alignment control: Osamu
- GW readout
  - OMC: Sam, Rich, PF
  - OMC suspension: Norna, Janeen, Chris, Calum, Jay, Vuk, PF
  - Tip-tilt-Z stages: Bram
  - Diode testing: Nick Smith … perhaps Jamie @Columbia
- ADC/DAC development: Daniel, Paul, Josh
- SPI: Bram

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Short term plans

- Design requirements & conceptual design
  - Prepare documents for end of May
  - LSC requirements: PF; ASC requirements: Rana
  - Conceptual design: all …
- What do we need at this level?
  - Modulation scheme
  - Layout of detection ports and tables
  - Length control modeling showing auxiliary noise is under control
  - Arm cavity locking results
    - Full IFO acquisition can be deferred
  - Concepts for in-vacuum photo-detectors
  - OMC design
  - Beam direction control (tip-tilt mirrors)
  - Electronics: scope & concepts
  - Isolation concept for HAM1 table

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Longer term

- Try out new modulation scheme at 40m
- Lock acquisition of full interferometer
- Alignment control modeling
- Length control modeling
- OMC/readout system testing in lab, then EnLIGO
  - Discuss scope & options for lab testing
- Design of detection beam paths
- SPI: feasibility will be evaluated in ~6 months
- Photodetector development
  - New pre-amp designs
  - In-vacuum design
- Electronics development … Rich will address

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Organizational

- Set up an ISC email list
- Set up an ISC telecon time slot
  - Start with monthly telecons?
  - Suggest Fridays at 1pm ET / 10 am PT
- Will need more dedicated face-to-face meetings
  - Perhaps early May to focus on requirements and conceptual design documentation