

# Suspension/Isolation Working Group

David Shoemaker - LSC - 15-Aug-00

G000197-00-R

## Activity since last LSC meeting

- Seismic Isolation
  - continued development of ‘stiff’ and ‘soft’ systems
    - TAMA application for the soft system,
    - research at JILA, MIT, LSU, and Stanford of stiff systems
  - choice of the stiff approach for LIGO II, centered at LSU/LLO
    - choice of an approach, not a specific conceptual design
    - engineering team at LLO to grow in parallel with prototyping at Stanford
  - aggressive pursuit of results from the stiff prototypes, engineering bids, planning for test and implementation

# Activity since last LSC meeting

- Suspensions: Thermal Noise
  - thermoelastic damping in fibers
  - research on coating losses
  - Q measurements of sapphire -  $\sim 3e8$
  - Q measurements of silica -  $\sim 6e7$
  - trades on beam and substrate sizes, beam form
  - bottom line: both fused silica and sapphire very much alive
- Suspensions: Mechanical design
  - refinement of the baseline design and requirements
  - work on attachments, fiber fabrication
  - plan for subsystem evolution, growth of expertise at Caltech

**For both Seismic Isolation and Suspensions:  
LIGO II Subsystems are born**

# At this meeting

## **Today, Tuesday 16.45-18.30 (Here, Now!)**

- Seismic subsystem review and discussion
- Suspension subsystem review and discussion

## **Wednesday**

- 9h-10.30: TAMA SAS discussion, Thermal Noise Interferometer Progress, discussion of future experiments in suspension noise
- 10.45-noon: Joint session with L&O and AIC
- 13h-15.45: Thermal noise research updates, Suspension point interferometer discussion
- 16-18h: Free (40m discussion)

## **Thursday**

- 8.30-10.30: Suspension/Isolation prototype test plan overview
  - **LIGO Advanced System Test Interferometer Technical Advisory Group meeting**
- 10.45-noon: Free (Detector Characterization talks)
- 13h-15h: Discussion of future planning