

# Suspension/Isolation Working Group

David Shoemaker - LSC - 19 Jul 99

## **Activities since last LSC meeting**

- Design Summit, MIT 13-16 May
- Extensive documentation of designs
- Innumerable teleconferences



# Design Summit

## Requirements

- point of departure: thermal noise to dominate Interferometer noise
- point of conclusion: quantum noise to dominate

## Suspension/thermal noise

- GEO design with modifications for lower frequency operation
- fused-silica ribbons characterized, promise very small suspension thermal noise
- Big Question: can the potential low thermal noise of Sapphire be realized?

## Isolation systems

- choose 10 Hz intersection with (Ribbon) suspension thermal noise
  - radiation pressure dominates; Newtonian Background nearby
- two viable design paths: passive and active attenuation of low frequencies
- passive elements close to test mass in any event

## Adoption of standards to help compare designs

- Suspension transfer functions, nominal closed loop controller, performance requirements
- Technical Readiness Levels, risk assessment



# At this meeting

## **Monday Afternoon**

- review of design status, inform and interact with LSC members not active in SWG

## **Tuesday Afternoon, Wednesday Morning**

- establish reference design recommendation

## **Wednesday Afternoon**

- coordination of R&D plans

**At the conclusion of the meeting, the Working Group chairs must have all input to come from the LSC at large on:**

- A reference design recommendation
- Detailed plan for R&D to support development of design
  - milestones
  - deliverables
  - costs



*Note 1, Linda Turner, 08/17/99 07:29:44 PM*  
LIGO-G990079-04-M