

## LSC Six-Month Progress Report

**Organization** Australian Consortium for Interferometric Gravitational Astronomy (ACIGA)

**Report Date** August 15, 2003

Attachment - B Isolation/Suspension/Thermal Noise Development

Participation:

Peter Veitch 50%

Chris Hollitt 100%

Bram Slagmolen 100%

Ju Li 50%

Ben Lee 100%

John Winterflood 50%

David McClelland 20%

a) FTDN1 / AU

The measurement system has been assembled on a bench-top. The large difference between the free spectral ranges of the reference stabilization cavity and the test cavity, and the low bandwidth of the servo control used for the stabilization cavity have caused problems in locking the frequency of the laser to the test cavity.

b) FTDN2 / ANU

Completed the measurement of the frequency distribution of the displacement noise of a small flexure suspension.

Determined that between 40Hz and 200 Hz the noise is suspension thermal noise is consistent with structural loss.

c) FTDN3 / UWA

Completed the design of a 2 stage active passive pre-isolator / 2 stage all metal isolator

Assembled test system

Continued assessment of novel sapphire / niobium suspension.