

LSC Six-Month Progress Report

LIGO-M M000109-00-M

Organization Institute of Applied Physics (IAP) at Nizhny Novgorod, Russia

Report Date 02/15/2000

Attachment C - Lasers/Optics

Participation Alexander Sergeev - 100%
Efim Khazanov - 100%
Anatoly Poteomkin - 100%
Anatoly Mal'shakov - 100%
Oleg Palashov - 100%
Nikolay Andreev - 100%
Ilya Kozhevatorov - 100%
Elena Kulikova - 100%
Nikolai Cheragin - 100%
Eugeny Katin - 100%
Vladimir Davidov - 100%

Item - Task 8 - a

Design and software support for the advanced phase-modulated white light interferometer to characterize the surface quality of the LIGO core optics (clear aperture up to 25cm, absolute accuracy better than $\lambda/1000$, measurement radius of curvature 3000m and more) were completed.

Item - Task 8 - b

The novel design of Faraday isolators was successfully tested at 1 micron wave length at average power up to 60W. Preliminary experiments showed possibility of use of photoelastic effect for suppression of thermal-induced depolarization in Faraday isolators.

Item - Task 8 - c

A number of solid-state and liquid nonlinear medium was compared from the viewpoint of measurement of small wave front distortion based on self-focussing technique. It was shown that benzene is the best medium from the list. Absolute precision up to $\lambda/3000$ was demonstrated.