

Thermal Compensation of the Radius of Curvature of GEO600 Mirrors

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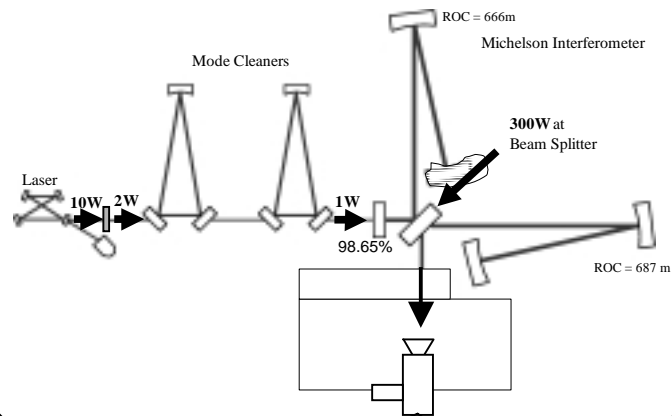
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Gravitationsphysik



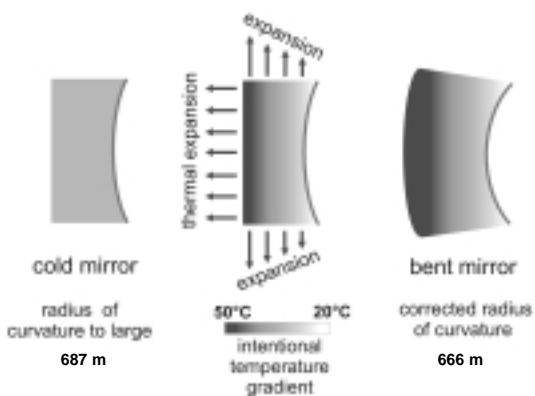
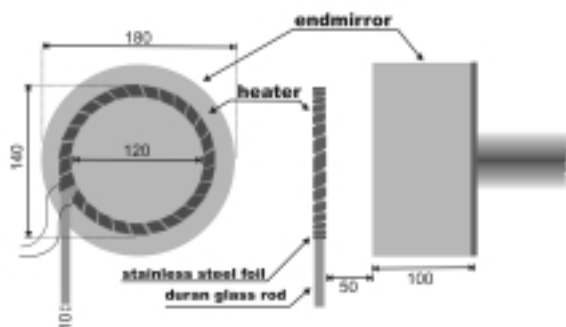
Introduction

- Power Recycling ~2000 + mismatch in the Radius of Curvature (ROC) of the far mirrors → poor contrast @ beam splitter.
- Poor contrast degrades error signals and makes locking impossible.
- GEO600 far mirrors have a mismatch in ROC of about 3%.
- Thermal gradient created by a ring heater deforms the mirror and corrects the ROC.

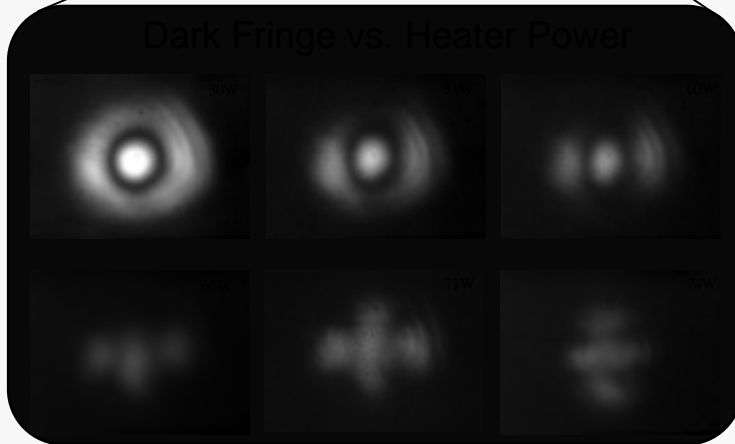
Optical Layout of GEO600



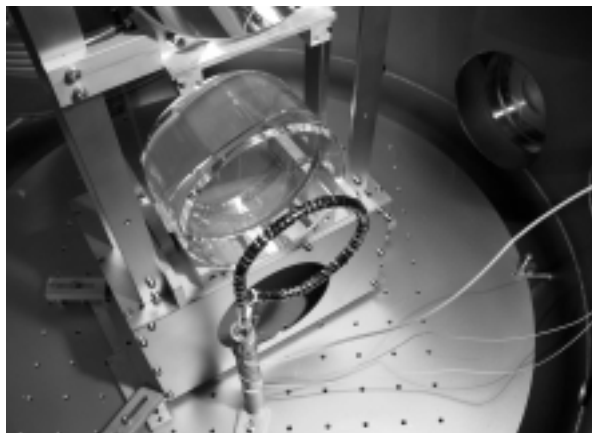
Compensation Concept



Dark Fringe vs. Heater Power



Far East Mirror & Heater



Intracavity vs. Dark Fringe Power

