

# Thermal Compensation of the Radius of Curvature of GEO600 Mirrors

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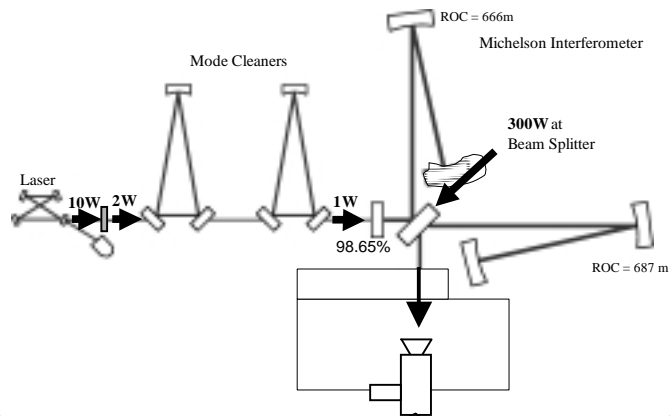
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Institut für  
Gravitationsphysik



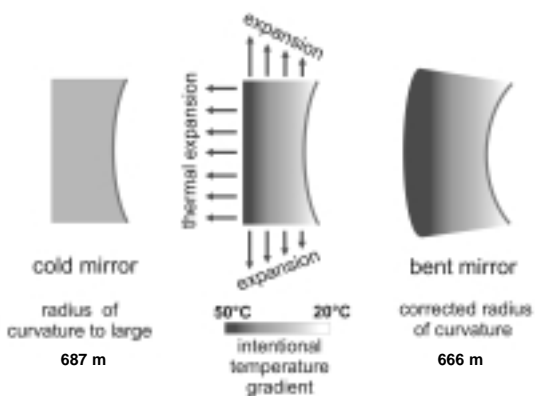
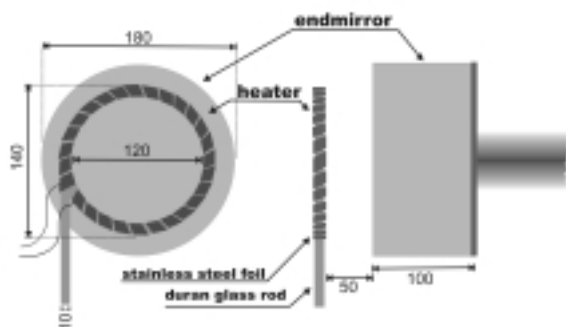
## Introduction

- 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.

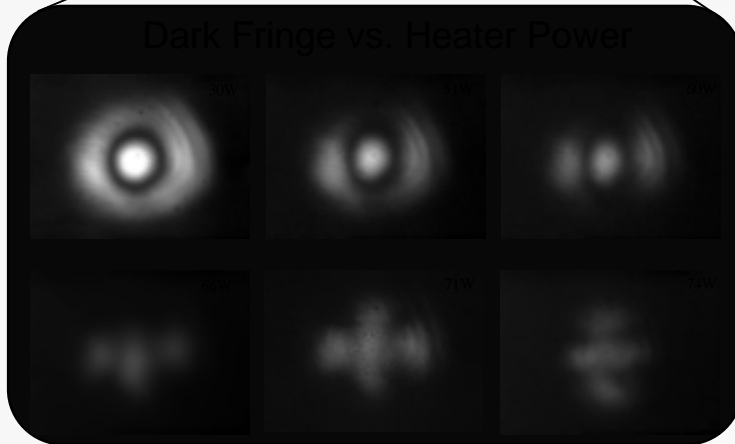
## Optical Layout of GEO600



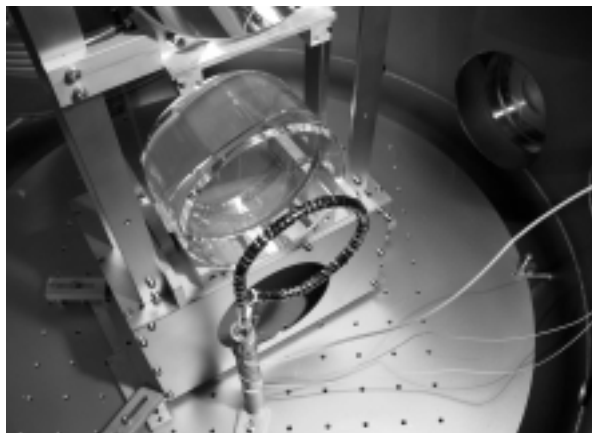
## Compensation Concept



## Dark Fringe vs. Heater Power



## Far East Mirror & Heater



## Intracavity vs. Dark Fringe Power

