

CHAPTER 51

TECHNOLOGY
APPLIED SCIENCES

Doctoral Theses

451. SHANKAR (Ajay)
**Investigations of Precision Displacement Measuring
Grating Interferometers.**
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Abstract

This investigates the ability of a grating interferometer to integrate the high resolution capability of Michelson interferometer with the in-plane displacement measurement capability of the optical encoders with minimum components. Investigation has also been done into widely reported and patented displacement measuring grating interferometers by showing that the grating interferometers where natural interference zones can produce a good sinusoidal fringe pattern have great potential.

Contents

1. Introduction. 2. Grating interferometry : A review. 3. Grating interferometry using natural interference zones. 4. Grating interferometer fringe analysis. 5. Design and analysis of some configurations and their components. 6. Experiments and results. 7. Conclusions. Appendixes.