Fabry-Pérot Interferometry
Experiment 03

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1 Aim

- To measure the distance between the plates of a Fabry-Pérot etalon
- To measure wavelength of unknown laser source using the distance between plates
- To estimate the finesse of a fringe pattern.

2 Apparatus

The required apparatus for performing the experiment are:

1. Laser source
2. Fabry-Perot etalon
3. Power meter
4. Focusing lens
5. Screen
6. Optical table

3 Theory

The experiment is based on the phenomenon of multi-beam from a parallel glass slab.

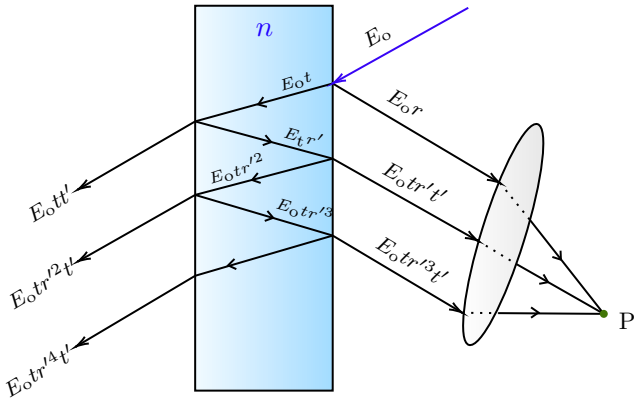

Figure 1: Multibeam Interference from a parallel slab

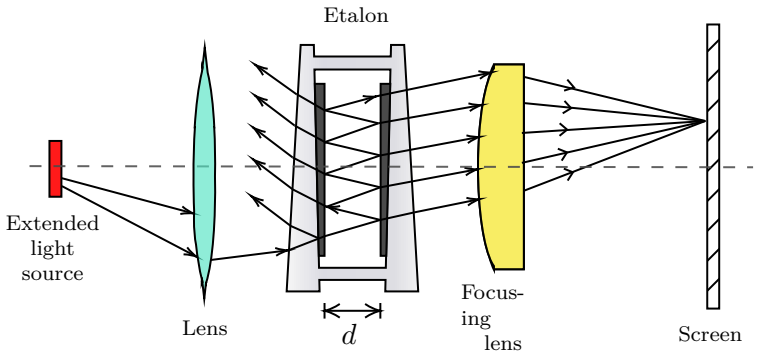

Figure 2: Schematic diagram of the Fabry-Perot experimental set-up

4 Data and Calculations

4.1 Distance between Plates

4.2 Wavelength of Unknown Laser

4.3 Finesse Calculation

5 Error Analysis

6 Discussion and Conclusion