

Physics 410/510

Experiment 02

Michelson Interferometer

Objects:

1. To measure the wavelength of the mercury green line, and to investigate the error in a screw. (To do this properly, measure the number of fringes for about 1 full turn of the lead screw. (several thousand) If you record the setting for say, every 100 successive fringes this will give you data to investigate the screw error)
2. To measure the wavelength separation of the mercury yellow lines, given their average wavelength, 5780A. 3480  
4303
3. To reproduce and observe the white light fringes directly, through a glass filter and through a glass filter in conjunction with an interference filter. Observe also fringe visibility vs. mirror distance for a cool low pressure mercury source as contrasted to a hot high pressure mercury source.

References:

\*Jenkins and White, Fundamentals of Optics, Chapt. 13, or Fundamentals of Physical Optics, Chapter 3.

\*Wood, Physical Optics, pp. 292-305, (3rd Edition)

Michelson, Studies in Optics, Chaps III, IV, V. (General and Historical)

Revised  
April 8, 1992  
BWB