

The Michelson Interferometer: Observations of the Wave-like Nature of Light

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The Michelson Interferometer is a creative tool for observing the wave-like nature of light. By splitting a beam of light and recombining the secondary beams after differing length paths an interference pattern can be observed. The spacing between fringes can be used to determine important physical variables such as wavelength of the light source and the indices of refraction for various media. A simplified version of the original Michelson Interferometer was used to measure the wavelength of a Metrologic laser and the index of refraction of glass. By using a built-in micrometer the device can measure fringe separation caused by interference of the viewing screen which can be used to calculate the wavelength of the light source. Placing a vacuum cell along one path can also be used to observe how pressure affects the speed of the beam by measuring the resulting interference pattern. Experimental methods and results from this device will be presented.