

THEORY

1. INTRODUCTION

The purpose of this experiment is to determine the relationship between the angle of incidence and the angle of refraction for a light ray passing through a rectangular glass slab. The refractive index of the glass is also to be determined.

The refractive index of a medium is defined as the ratio of the speed of light in vacuum to the speed of light in the medium. It is denoted by the symbol n .

The refractive index of a medium is a measure of how much the light ray bends towards the normal when it enters the medium from air.

2. OBJECTIVE

To determine the refractive index of a rectangular glass slab.

To determine the relationship between the angle of incidence and the angle of refraction.

To determine the relationship between the angle of incidence and the angle of emergence.

To determine the relationship between the angle of incidence and the lateral displacement.

To determine the relationship between the angle of incidence and the optical path length.

To determine the relationship between the angle of incidence and the optical path difference.

To determine the relationship between the angle of incidence and the optical path length difference.

To determine the relationship between the angle of incidence and the optical path length difference.

To determine the relationship between the angle of incidence and the optical path length difference.

To determine the relationship between the angle of incidence and the optical path length difference.

To determine the relationship between the angle of incidence and the optical path length difference.

To determine the relationship between the angle of incidence and the optical path length difference.

To determine the relationship between the angle of incidence and the optical path length difference.

To determine the relationship between the angle of incidence and the optical path length difference.

EXPERIMENT



The diagram shows a rectangular glass slab with a light ray incident at an angle i to the normal. The ray is refracted towards the normal at an angle r . The emergent ray is parallel to the incident ray and is refracted away from the normal at an angle e . The normal is shown as a dashed line perpendicular to the surfaces.

The angle of incidence is i , the angle of refraction is r , and the angle of emergence is e .

The refractive index of the glass is n .

The refractive index of the glass is n .

The refractive index of the glass is n .