6S2B Experiment: Refractive Index

Objective: To measure the refractive index of glass and liquid by Snell’s law and critical angle.

Apparatus: Rectangular glass block, optical pins (4), drawing board, protractor, sheet of paper, drawing pins (4) and liquid (water)

Procedure and results:

(1) Measuring the refractive index of glass block by angles of incidence and refraction.

1. With drawing pins fix a sheet of paper on a drawing board.
   Place a glass block in the middle and draw the outline of the block ABCD on the paper.

2. Place two optical pins, P1 and P2, on one side of the block as shown. Look through the other side and place two other pins, P3 and P4, so that they appear to be in line with P1 and P2.

3. Mark the positions of the four pins, remove the block and draw lines through the points as shown. (The drawing paper will be handed on.)
   Measure and mark the angles of incidence and refraction on the drawing paper.

4. Tabulate the angles of incidence and refraction on both sides of the block.

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<th>on the side AD</th>
<th>on the side BC</th>
<th>mean</th>
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<tr>
<td>angle of incidence</td>
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<tr>
<td>angle of refraction</td>
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Refractive index of glass \( \eta = \frac{\sin i}{\sin r} = \) __________

= __________

Reference: Further Physics Book 1 p.188 - p.189