

MP/409

critical angle for diamond?

diamond \rightarrow air

$$n_i = 2.42$$

$$n_i \sin \theta_i = n_r \sin \theta_r$$

$$\theta_i = ?$$

$$(2.42) \sin \theta_i = (1.00) \sin 90^\circ$$

$$n_r = 1.00$$

$$\sin \theta_i = \frac{1.00}{2.42}$$

$$\theta_r = 90^\circ \text{ (exactly)}$$

$$\theta_i = \sin^{-1} \left(\frac{1.00}{2.42} \right)$$

After 24.4° , the light
will be totally reflected.

$$\theta_i = 24.4^\circ$$