

Optics and Waves

A beam of unpolarized light is incident on a polarizer set to vertically polarize the beam. After passing through the first polarizer the beam passes through another which is set at an angle θ with respect to the first. If the original beam had an intensity I_0 , which of the following is the intensity of light after the second polarizer?

- A) $I = I_0 \cos \theta$
- B) $I = \frac{1}{2} I_0 \cos^2 \theta$
- C) $I = \frac{1}{2} I_0 \cos^4 \theta$
- D) $I = I_0 \cos^4 \theta$
- E) $I = 2 I_0 \cos^2 \theta$

(B)