Answer on Question #65232, Physics / Optics

The refractive indices of the core and cladding materials of an optical fibre are 1.51 and 1.39 respectively. Calculate the numerical aperture and light gathering capacity of the fibre.

Find: NE - ?

Given:

$n_{core}=1.51$

$n_{cladding}=1.39$

Solution:

Numerical aperture:

$$NA = \sqrt{n_{core}^2 - n_{cladding}^2} \ (1)$$

Of (1) $\Rightarrow$ NA=0.59

NA is intended as a relative indication of the light gathering capacity of the fibre core.

Light gathering capacity of the fibre: 0.59

Answer:

NA=0.59

Light gathering capacity of the fibre: 0.59

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