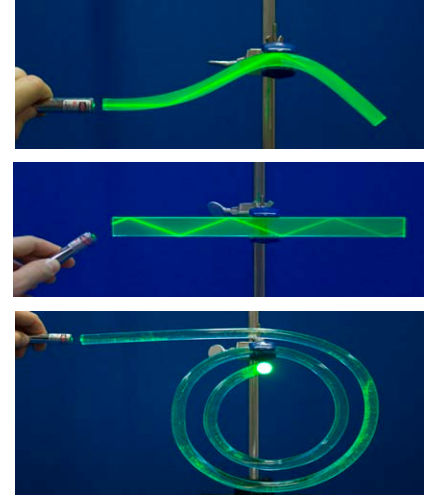


Optics

Geometrical Optics

Total Internal Reflection



Concept:

This apparatus demonstrates total internal reflection of a laser beam within various acrylic rods and a long fiber optic cable. For acrylic, which has about the same index of refraction as water ($n=1.33$), the critical angle is $\sim 49^\circ$. For the fiber optic cable, which has an internal core ($n=1.5$) and cladding ($n=1.4$), the critical angle is $\sim 42^\circ$.

Equipment:

- Green Laser and Case
- Acrylic Pieces
- Fiber Optic Cable (19 m)
- Support Stand with 3' Rod
- (3) 2-Prong Rod Clamps

Procedure:

1. Use the green laser pointer to bounce a beam of light through the acrylic pieces.
2. Repeat using the 19 meters of fiber optic cable.