

Quiz 27.2A

Light is incident on a 654-nm thick film ($n = 1.41$) that has been applied to a glass lens ($n = 1.50$). You may assume that the light is initial in air ($n = 1.00$) before striking the surface of the film.

We consider two light rays, A and B, that transmit through the film. Ray A passes through the film without reflecting. Ray B reflects twice off the surface of the film before transmitting through, as shown below.

- a) What is the phase shift experienced by ray A, in waves?
- b) What is the phase shift experienced by ray B, in waves?
- c) What wavelengths of light will brightly transmit through the film and into the glass?

Assume visible light ranges from 400 - 700 nm. Answer part c with 3 SF.

