

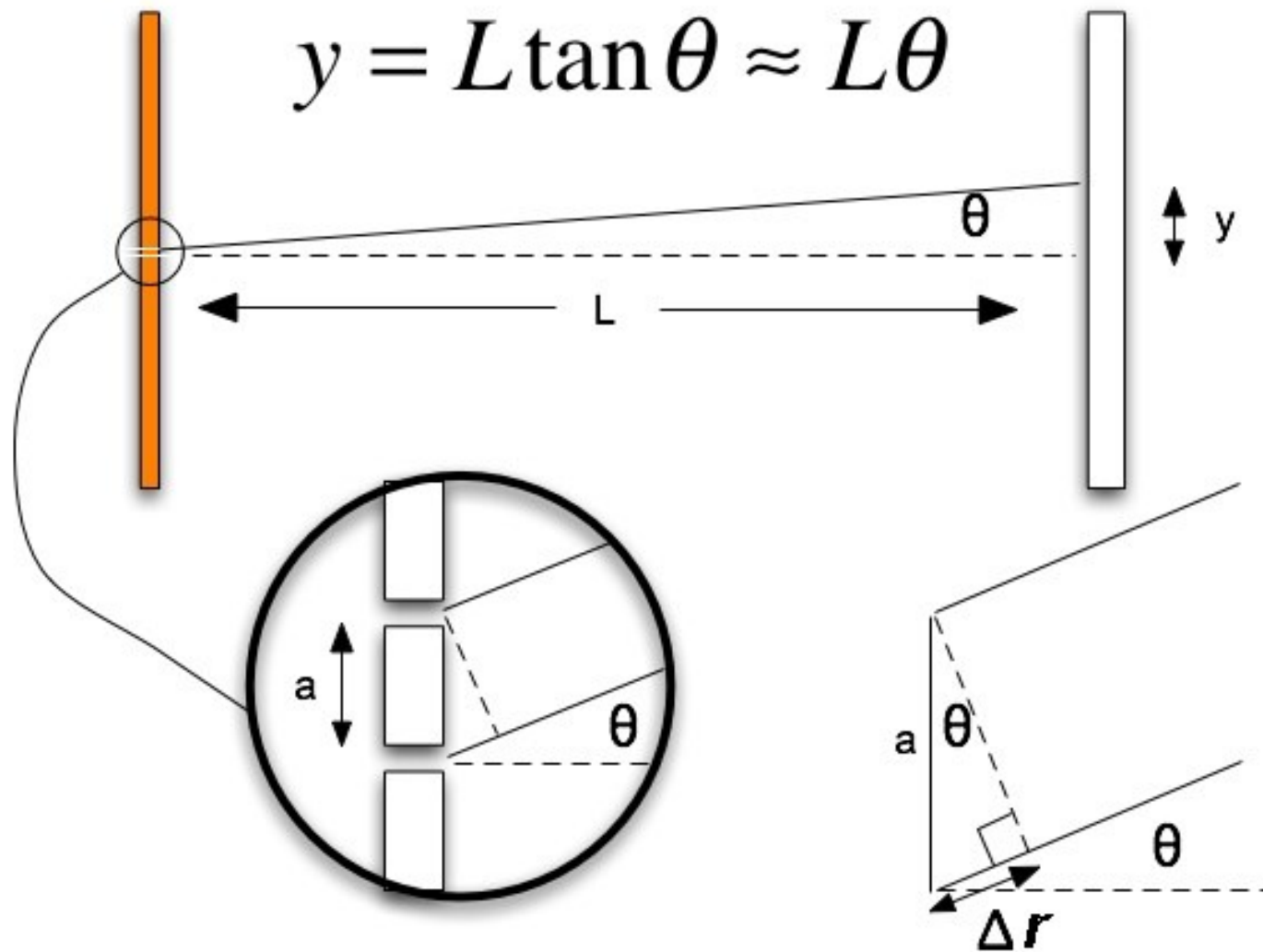
# Outline

## Models of Light: Waves

Office Hours (in course center):

Friday 5/10 2-3pm review questions

3-4pm office hours



Slit separation: 0.25mm

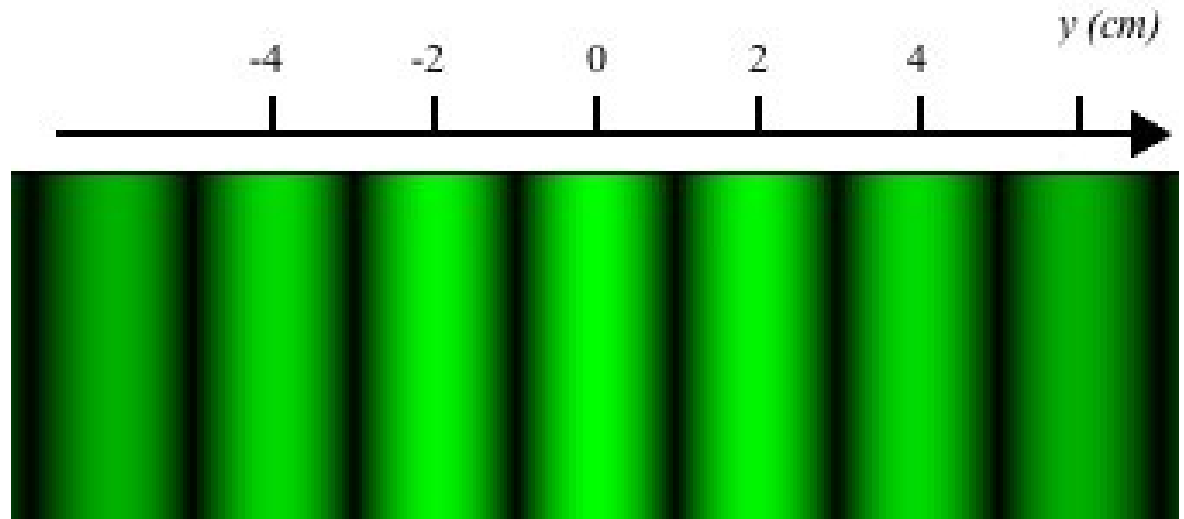
Distance slit to screen  $L$ : 1 m

Distance of first bright spot next to center spot: 4mm

What is the wavelength of light?

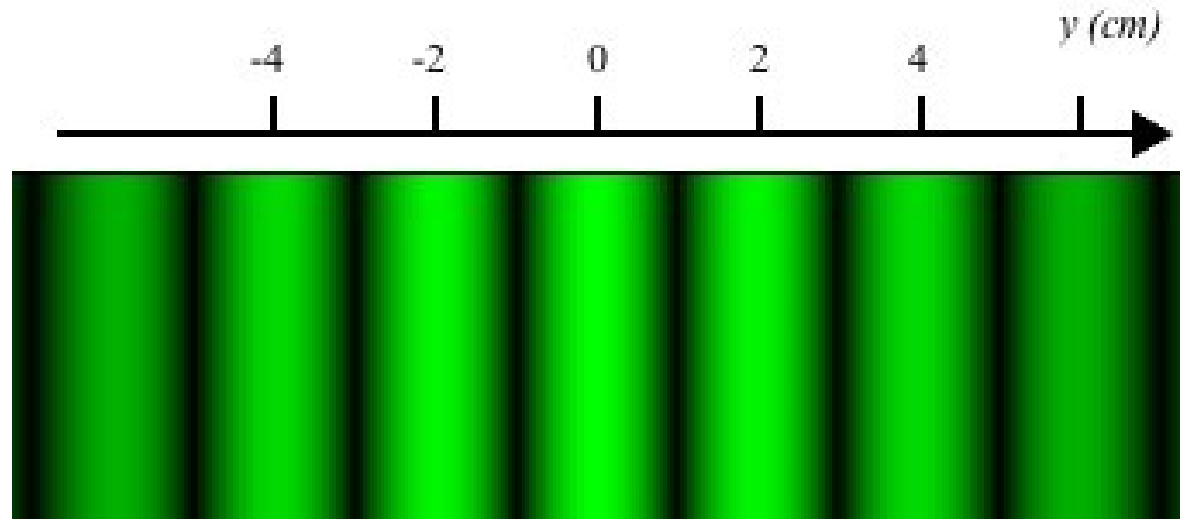
The green interference fringes shown in the picture on the right are produced on a screen by putting a green laser beam with a wavelength of 550 nm through two identical slits. If the screen is 4 m from the slits, can the spacing between the slits be calculated?

1. Yes
2. No



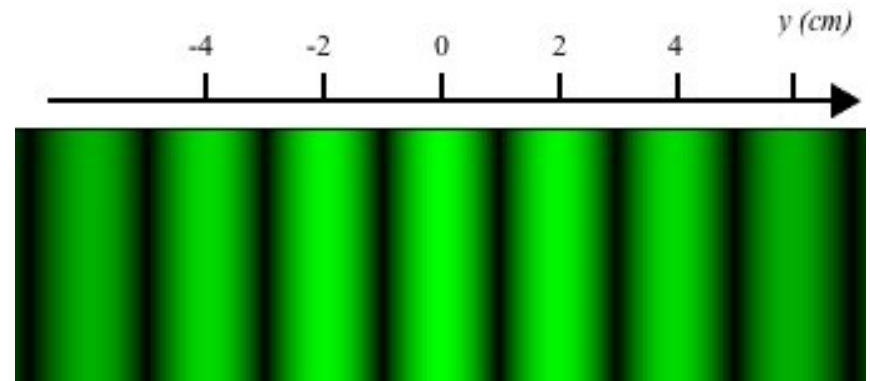
The green interference fringes shown in the picture on the right are produced on a screen by putting a green laser beam with a wavelength of 550 nm through two identical slits. If the screen is 4 m from the slits, can you find the spacing between the slits?

1. Yes
2. No

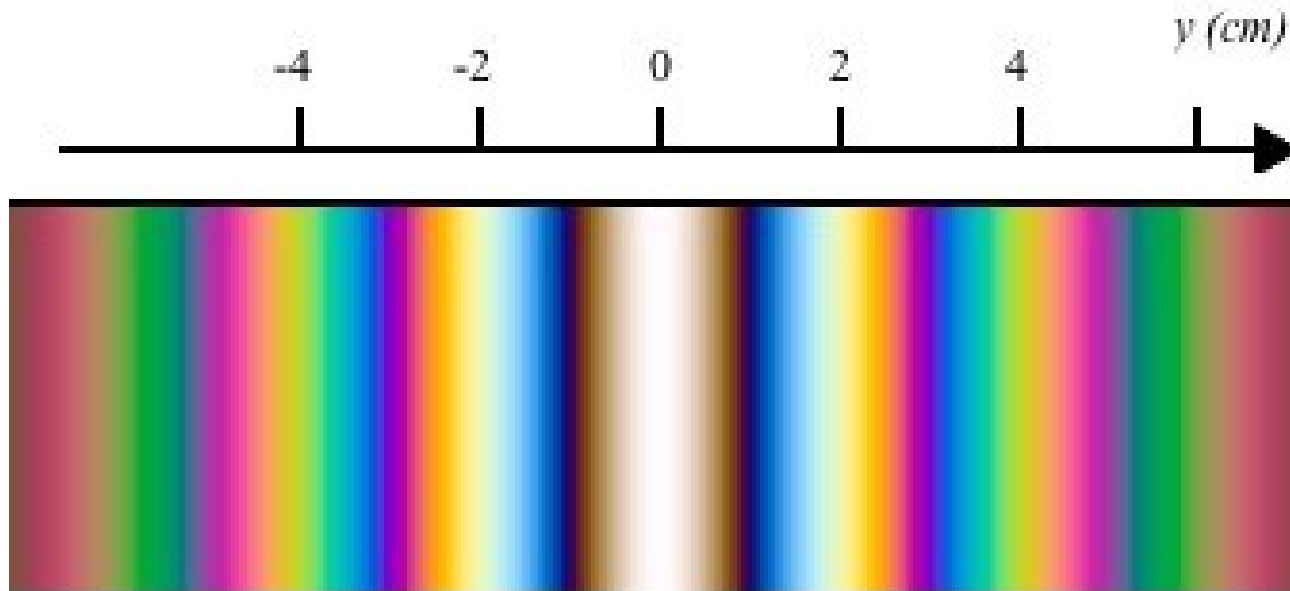


If the screen were moved closer to the slits, what would happen to pattern on the screen?

1. It would not change.
2. It would squeeze closer together.
3. It would spread further apart.
4. You can't tell from the information given.

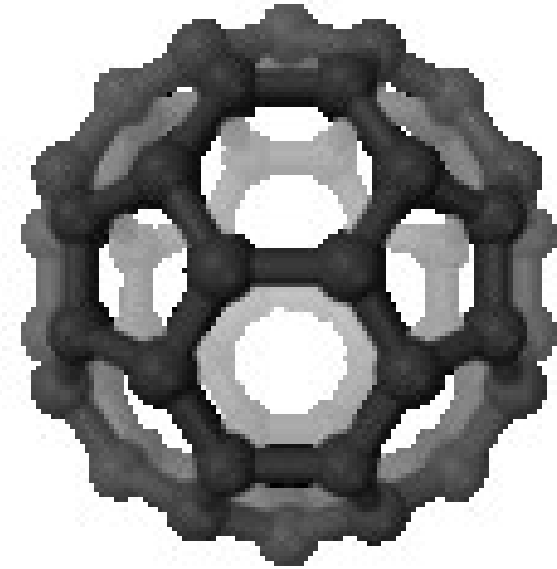


The figure shows what happens if you put white light through the same slit-screen system. Why are the different colors separated on either side of the center?



Double slit interference is not unique to light, indeed it also applies to atoms (e.g. the 60 Carbon atom “buckyball”) which also have electromagnetic clouds around them?

1. A Buckyball will show interference patterns just like photons
2. A buckyball will require larger slits
3. A buckyball will require smaller slits
4. Not sure



A laser beam passes through a double-slit forming an interference pattern. If we cover one slit with a glass plate, the phase of the wave passing through the glass changes by  $180^\circ$  from what it would have been without the glass. How is the interference pattern changed?

1. The pattern of alternating light and dark spots disappears leaving a single, wide, bright spot.
2. The pattern of alternating light and dark spots disappears leaving the screen dark.
3. The pattern of bright spots spreads out.
4. The pattern of bright spots gets closer together.
5. The pattern reverses itself, bright becoming dark and vice versa.

