

And let there be light...

Wave motion (wave tank)

- Diffraction

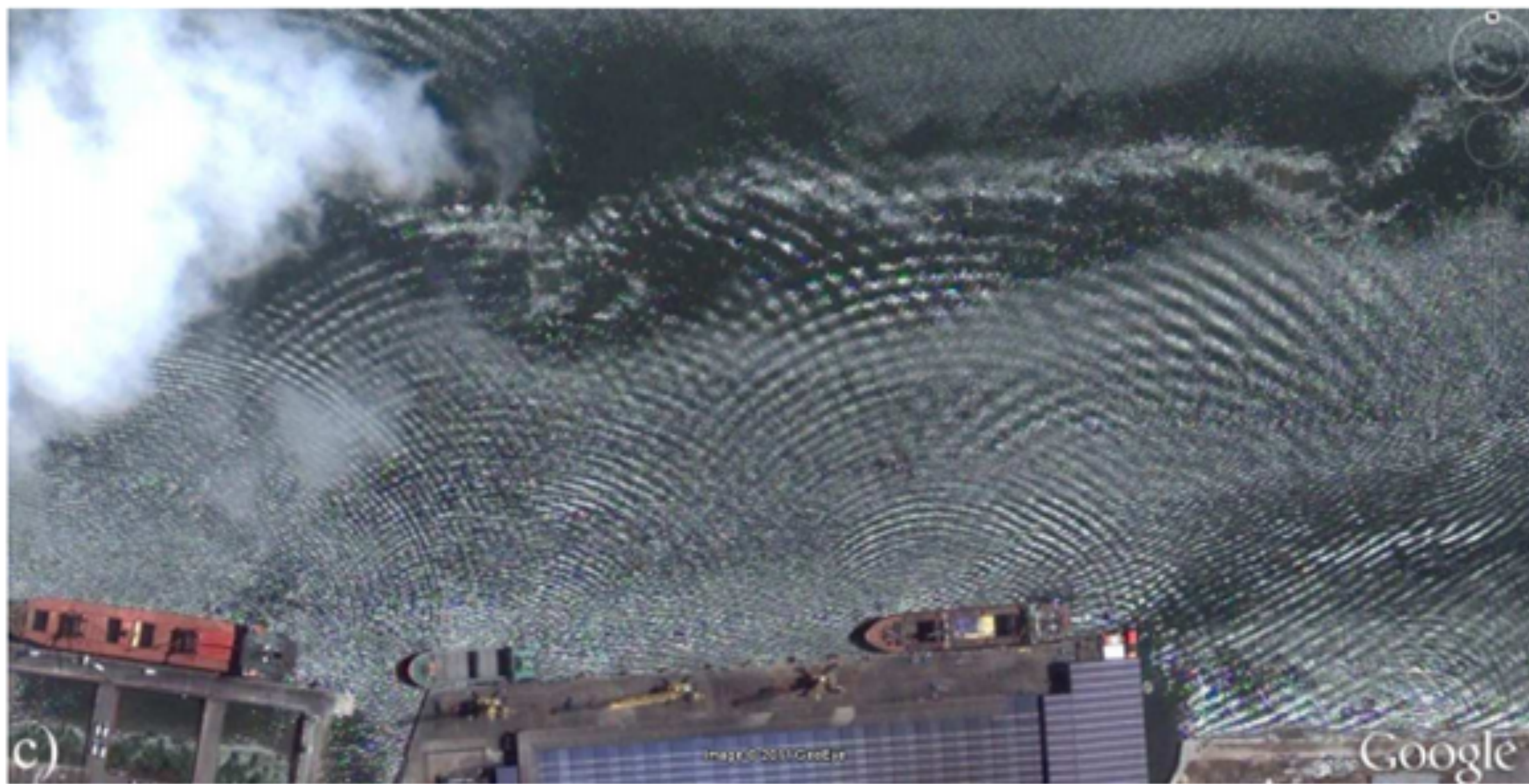
Wave motion (wave tank)

- Interference

Interference (examples)









Interfering waves



Wave interference

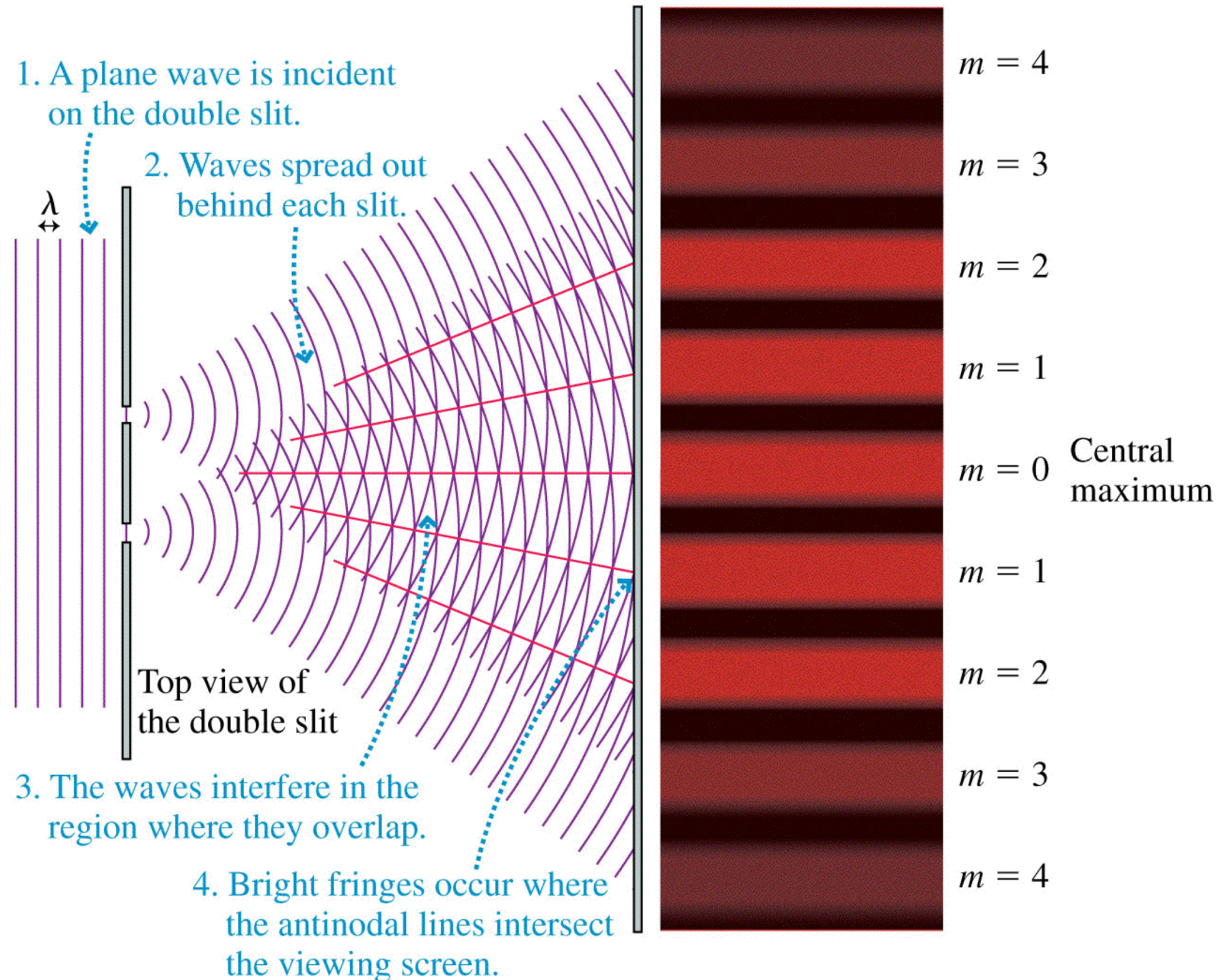
- Waves add
- Some places you get increased height (add in phase)
- Some places you get cancellation (add opposites)
- Spacing between high and low spots depends on wavelength

Interfering waves



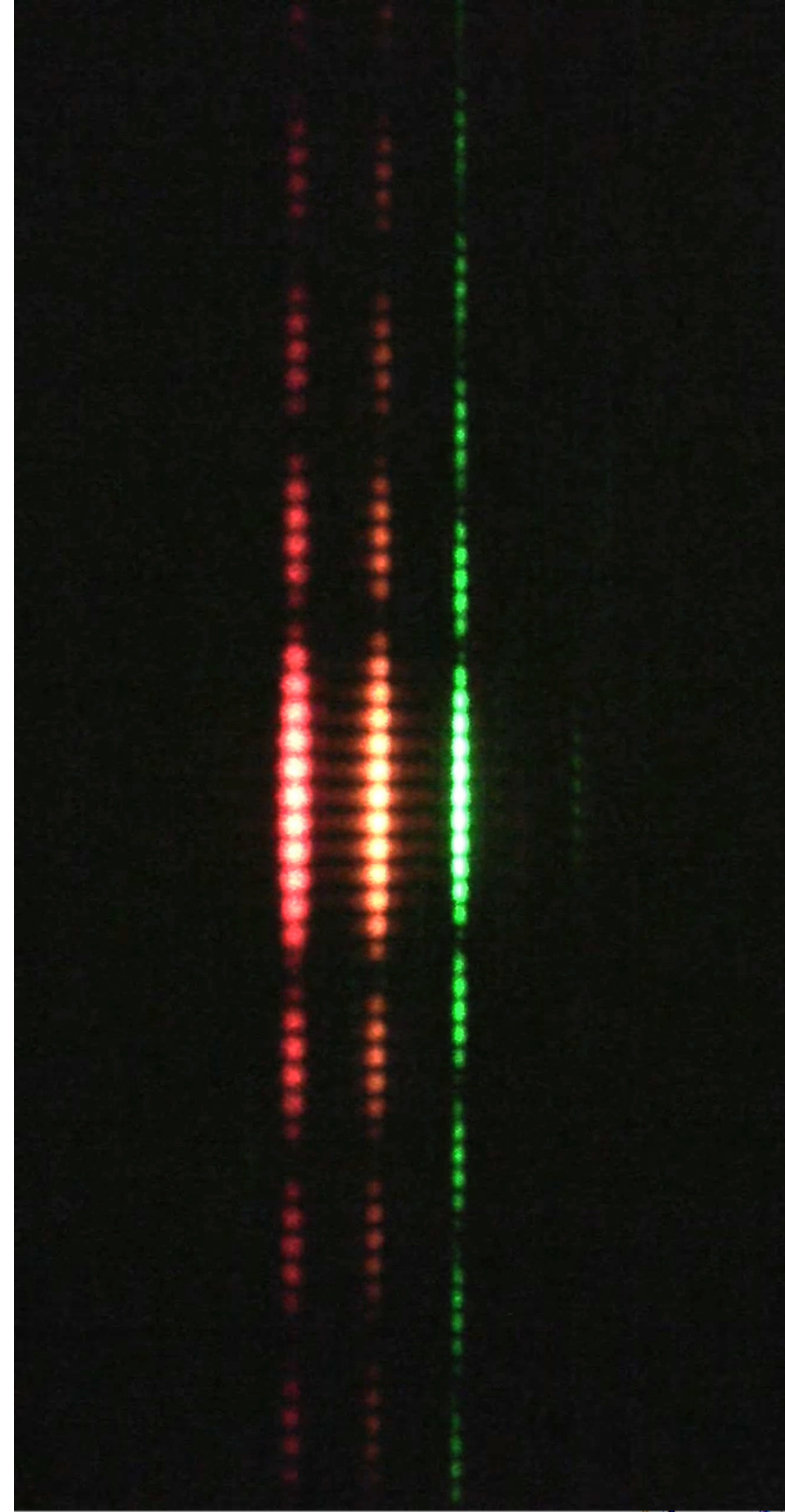
Laser pointer

Stripes from interfering waves



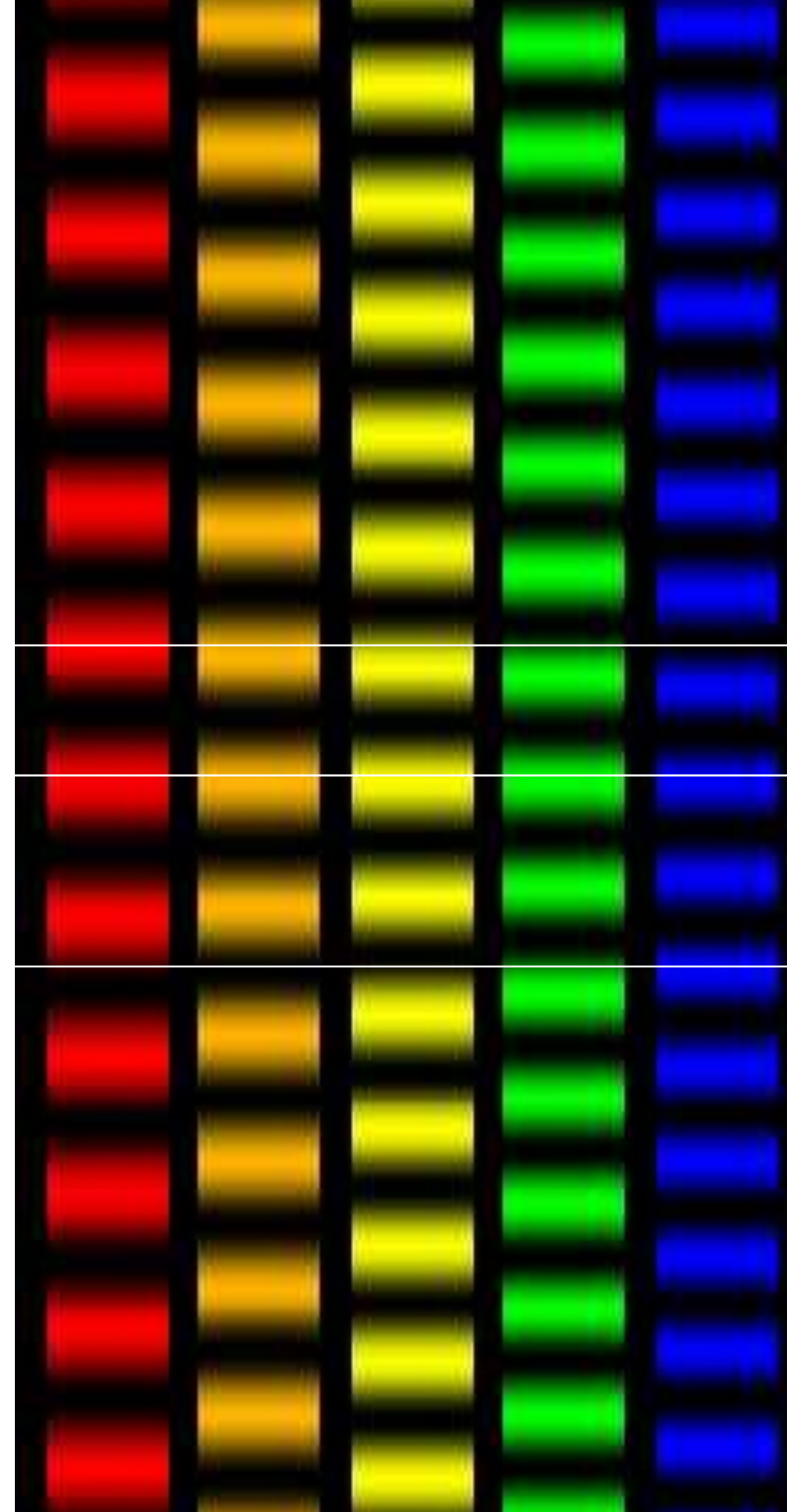
Color

Stripe spacing with color



Stripe spacing with color

- Blue-violet is the shortest
- Red is the longest

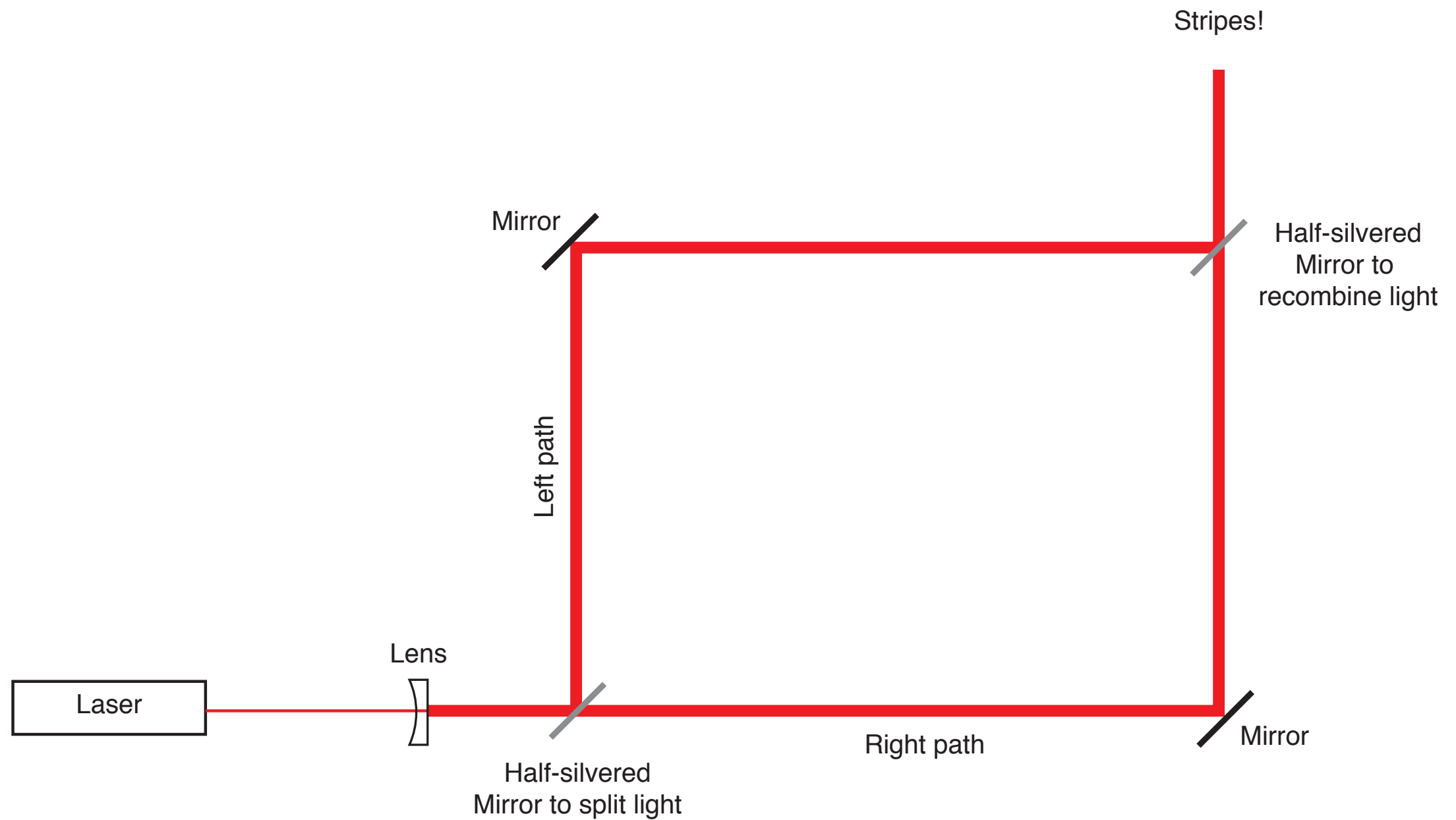


Color is wavelength of light

- Your brain tells you the wavelength encoded in color
- Blue-violet is shortest
- Red is longest
- There are shorter than blue (ultra-violet, x-ray, ...)
- There are longer than red (infra-red, microwave, radio, ...)



Bigger



One photon at a time