

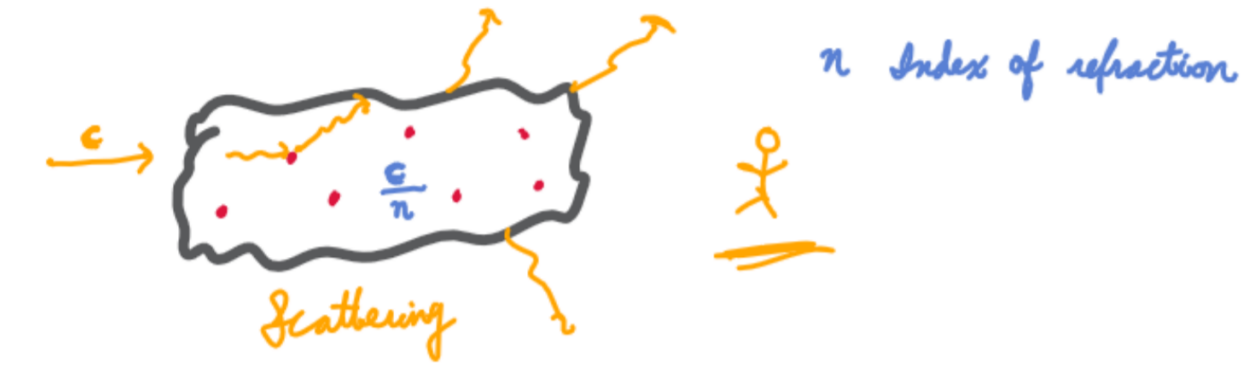
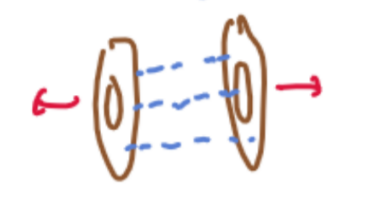
Wave Particle Duality

Photon: type of boson $\rightarrow n\hbar$ Spin: intrinsic angular momentum

Quark: type of fermion $\rightarrow (n + \frac{1}{2})\hbar$

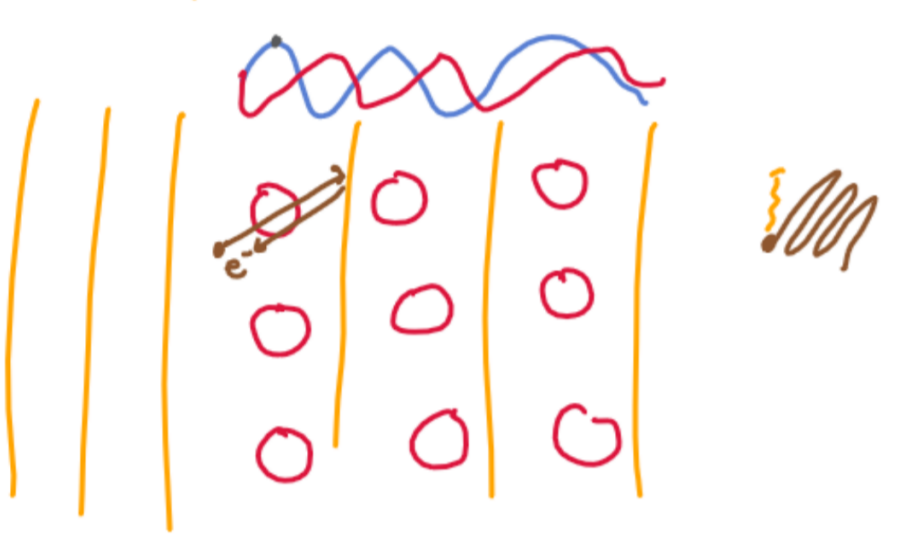
\uparrow \downarrow these phases

Photons are the carriers of the electromagnetic force



High Intensity

Low Intensity



Quantum Mechanics



Phase Velocity: can be greater than c

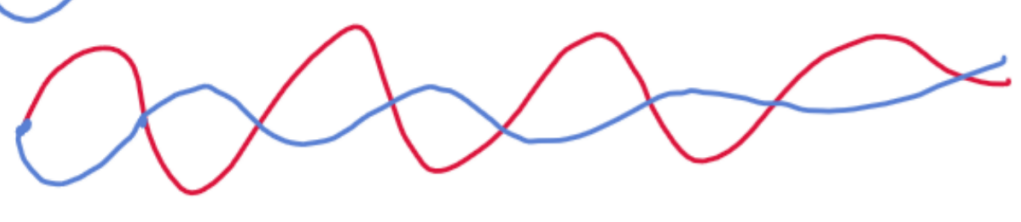
Group Velocity: cannot be greater than c



The Illusions of Light

- Not matter
- Wavelength, wave characteristics

Electromagnetic Wave

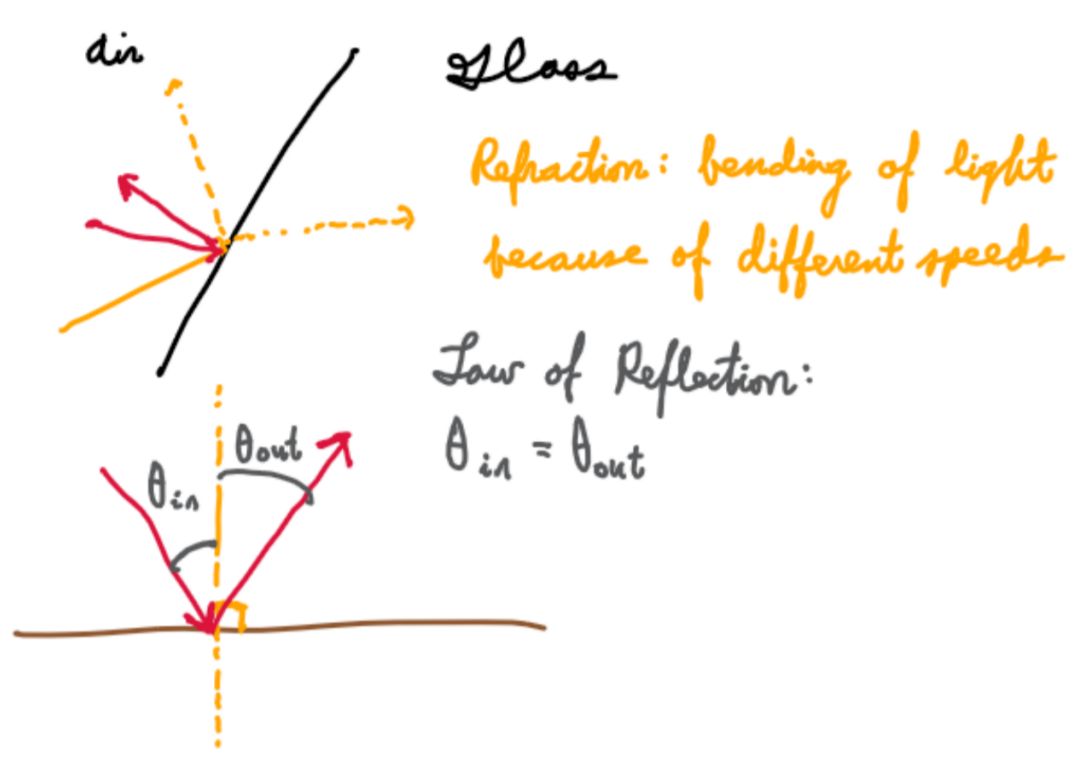


E M E M E



Photons

Wave-particle duality



Light moves at different speeds in different mediums

