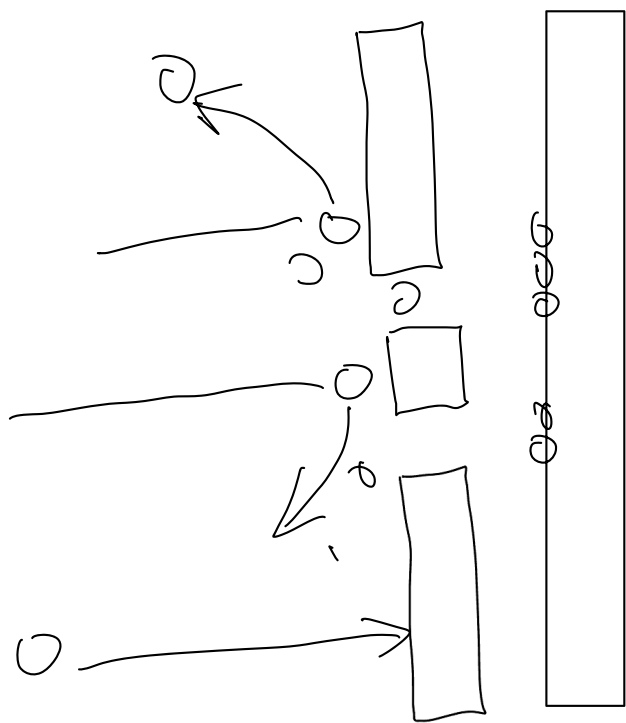


Double Slit Experiment

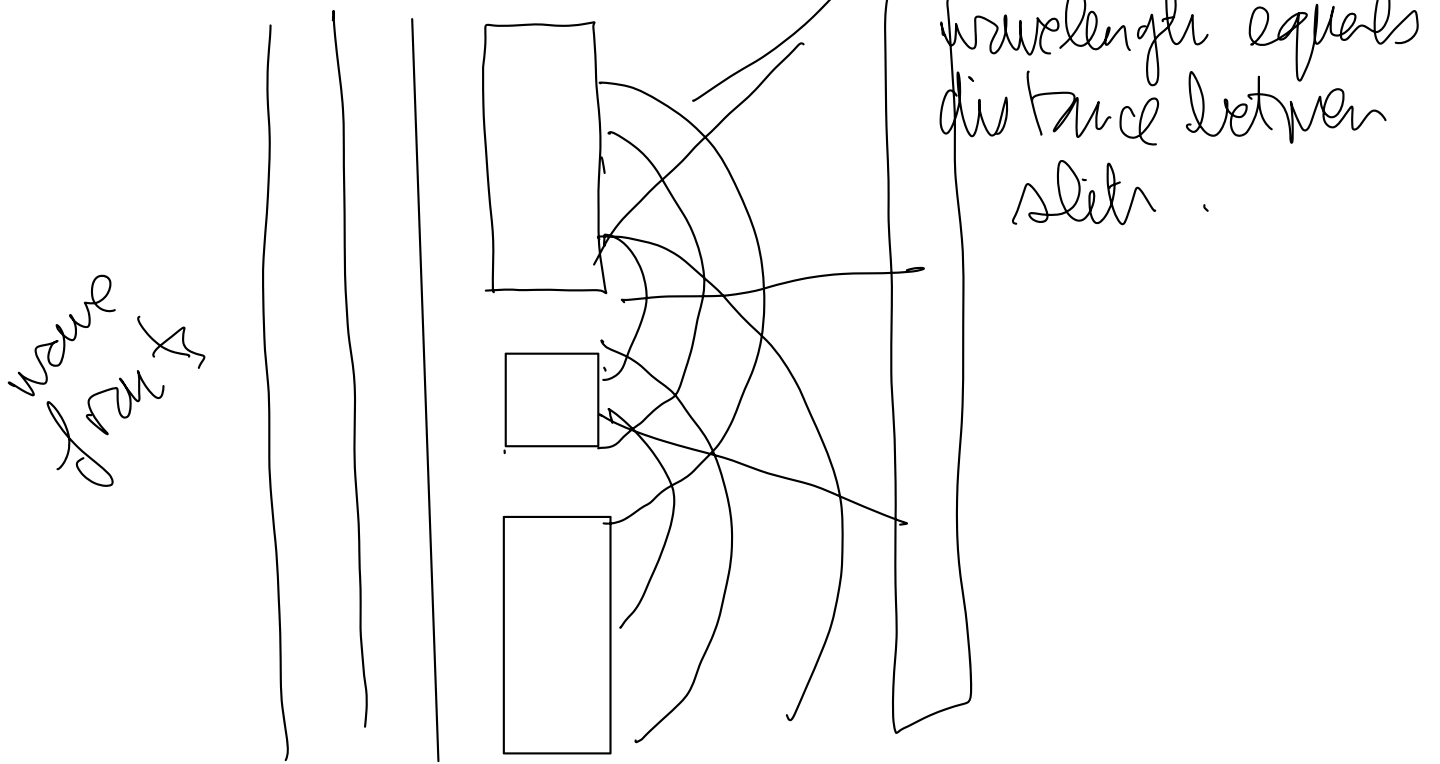
Demonstrates: \rightarrow particles such as electrons sometimes behave like waves.

\rightarrow observing such particles can change their behaviour.

* How do solid particles behave?



↓
How do waves of a single wavelength behave?



constructive and destructive interference

peak + peak = construct

peak + trough = nothing

you get an interference pattern.

How does light behave?

Close one slit. Particles

behave like particles (ie like tennis balls)

Reveal the 2nd slit and you get an interference pattern. As more electrons go through 2nd slit, interference pattern appears

Explanation?

⊗ Particles interfere with each other:
⇒ still happens if the particles go through one by one.

⊗ Electron splits goes through slits and recombines?

⇒ put a detector at slits & interference pattern disappears!

Conclusion

Electrons and their wave combine

characteristics of wave & particles.