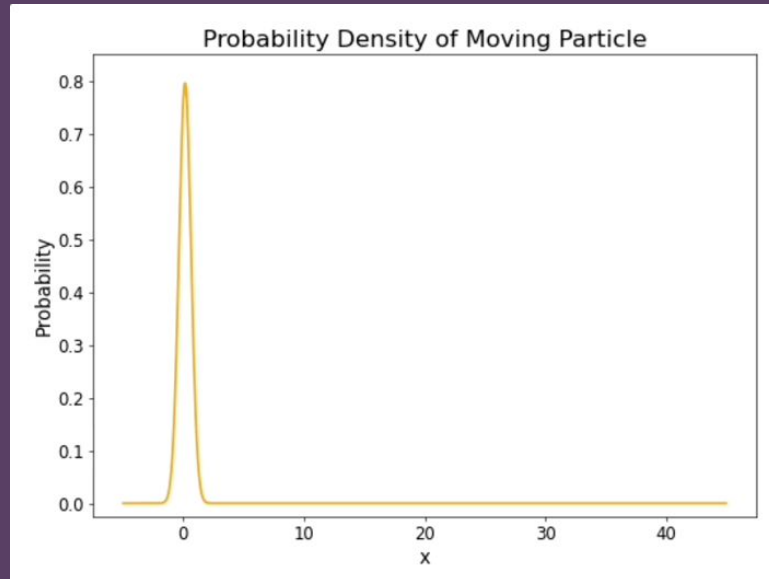# PH 366 Day 16:
Wave-Particle Duality

3 Mar 2025

Announcements

Final Project:

- Details posted to Canvas
- Groups of 3-5
- Select project from options, or propose your own as a group
- **Wed + Mon** (3/5 and 3/10) is project work time
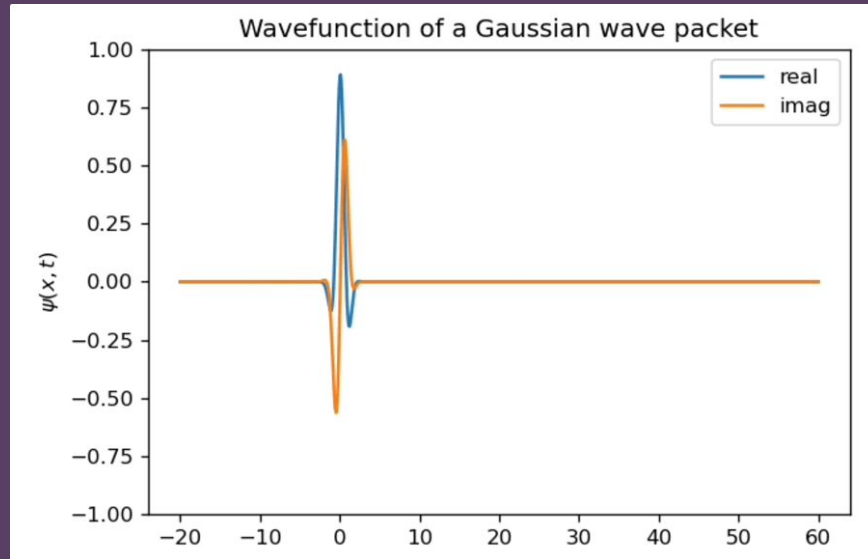- Next **Wed** is group project presentations

Probability Densities ⟵⟶ Particle

Particle positions can be **measured experimentally**

Wavefunction ⟵⟶ **Wave**

Wavefunctions can be **derived from theory**

Wavefunctions and Probability Densities

Probability densities **come from** wavefunctions

$$\mathcal{P}(x, t) = |\psi(x, t)|^2$$

Norm-squared:

$|\psi|^2 = |\text{Real}(\psi) + i \cdot \text{Imag}(\psi)|^2$

$\qquad = \text{Real}(\psi)^2 + \text{Imag}(\psi)^2$