Quantum Mechanics
Physics 237

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Course Announcements

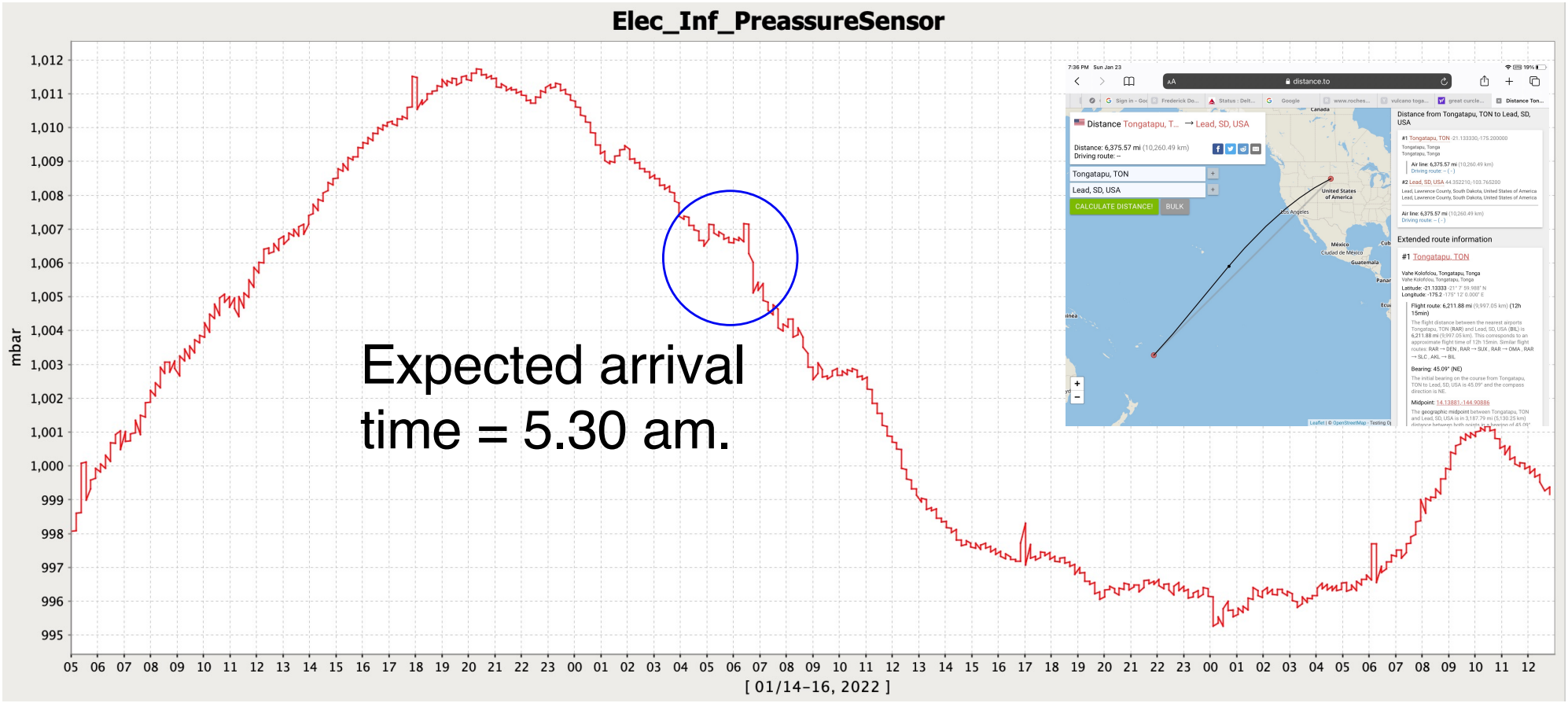
- Recitations have started this week:
  - I asked the TAs to keep track of attendance. It is one indication of how much effort you put into this course.
- Solutions to homework # 1 are now posted on the PHY 237 website. You need to use the username and password distributed via email to access the restricted pages of the website.
- Homework # 2 is due on Friday (**at noon, 12 pm EST, 12:00 EST**).
- Details of the office hours can be found on the PHY 237 website.

Impact of eruptions can be felt around the world.

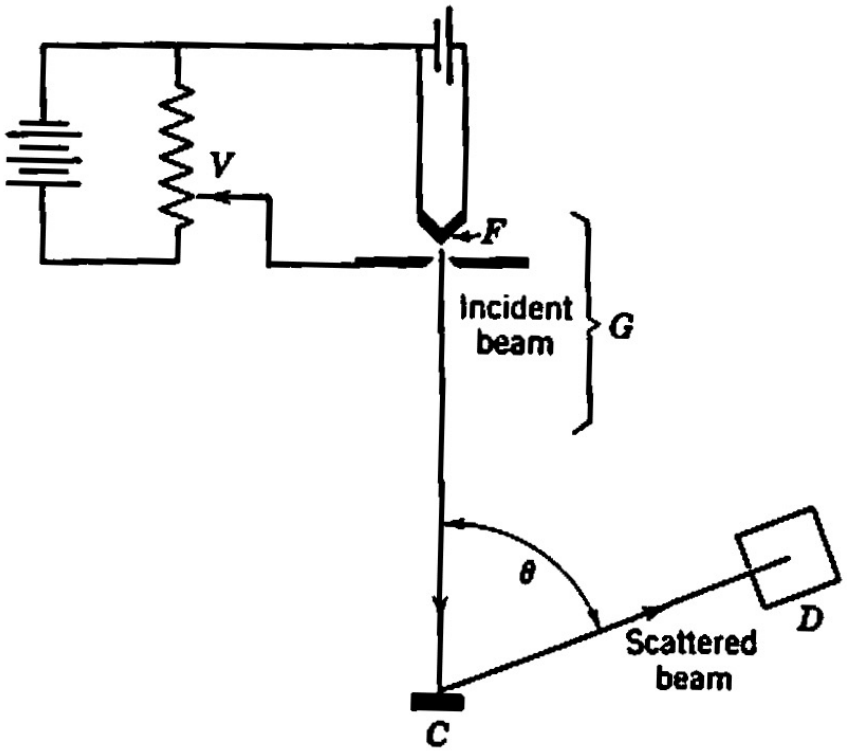
A satellite image of the Hunga Tonga-Hunga Ha'apai volcano on Jan. 6, before the eruption, as it was sending up steam plumes and gases. Maxar Technologies

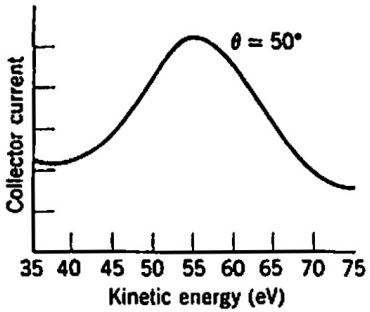
A satellite image of the volcano on Tuesday, after the eruption. Hunga Tonga has been a source of simmering fear for years. Maxar Technologies

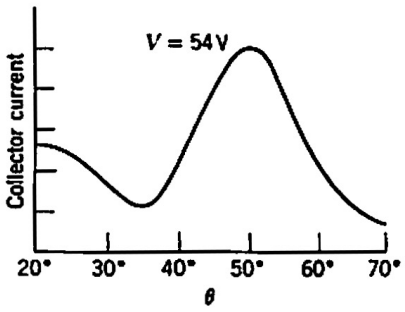
Distance Tonga – Lead (SD) = 10,260 km.
Travel time = 8 hours 22 min.



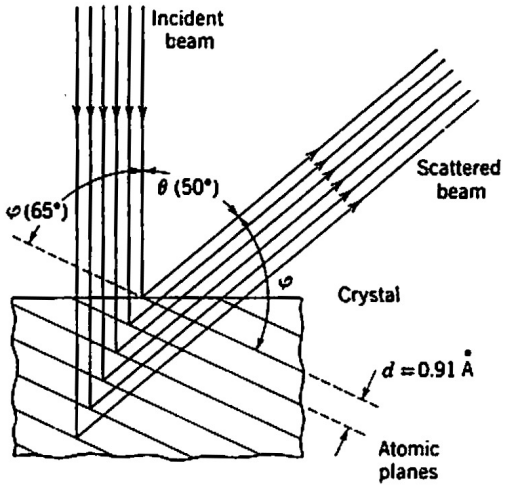
Electron Diffraction

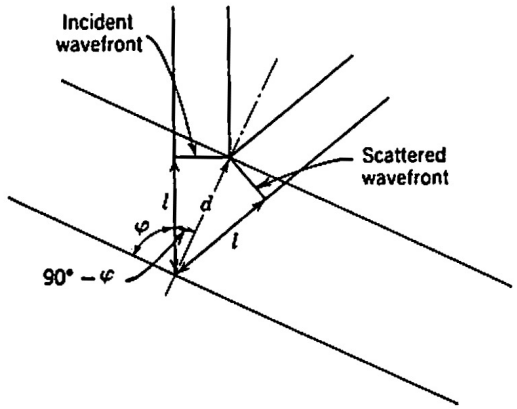


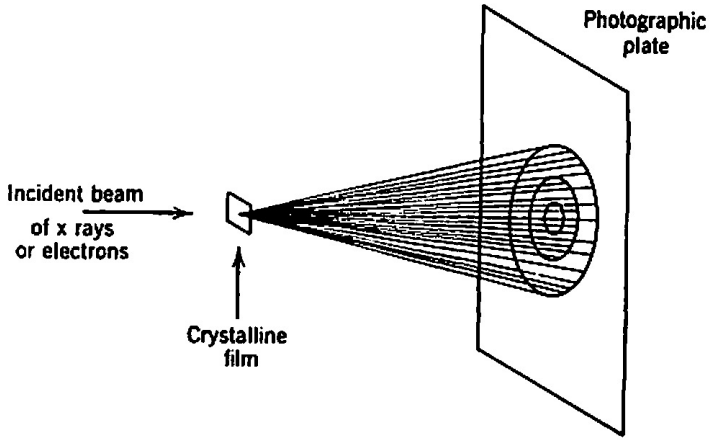


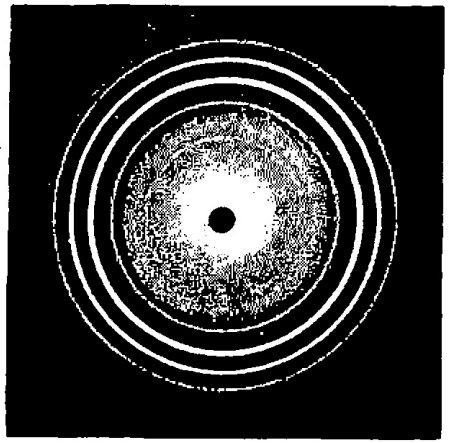


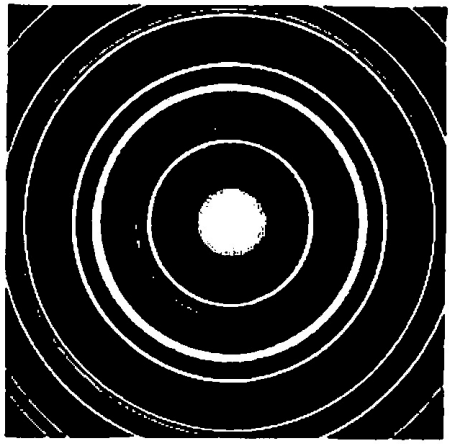
Electron Diffraction.



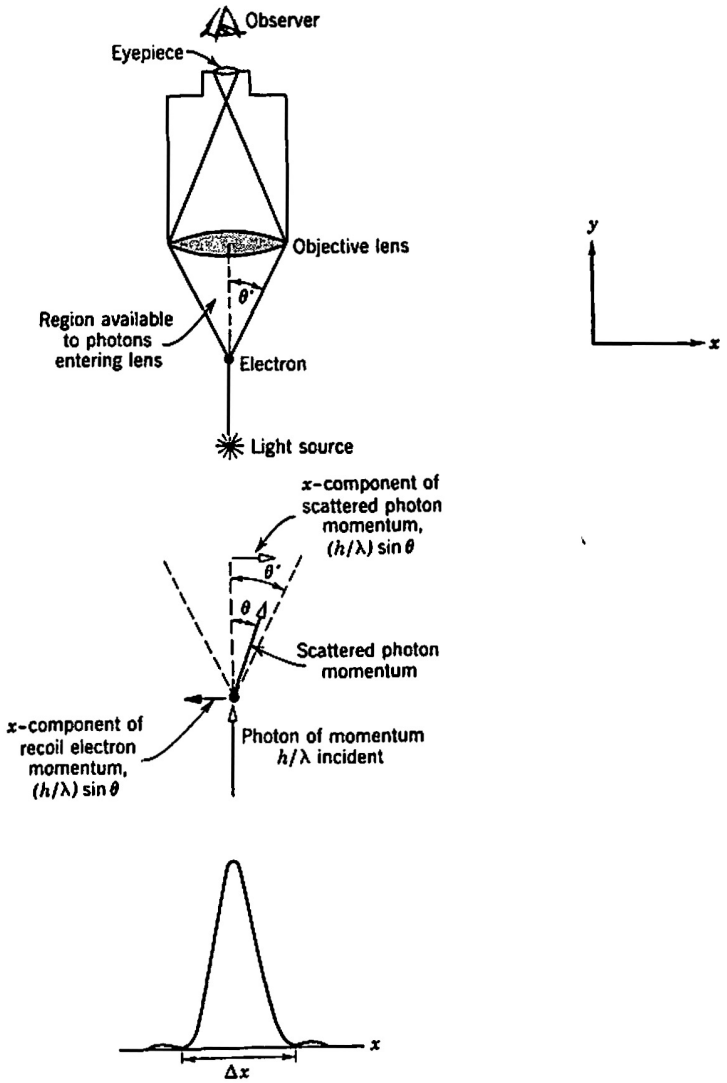








Measuring Position.

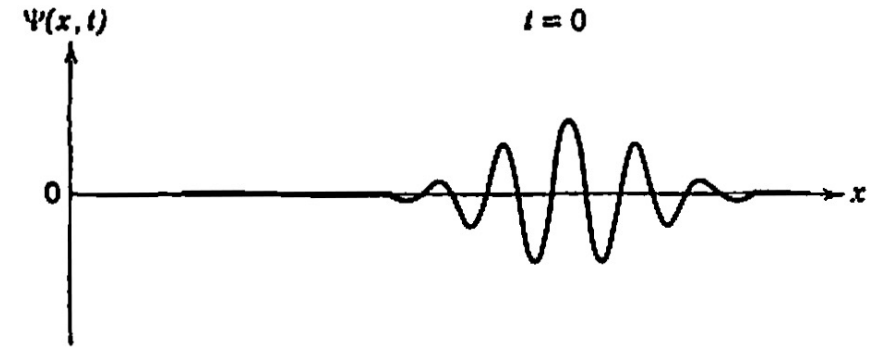


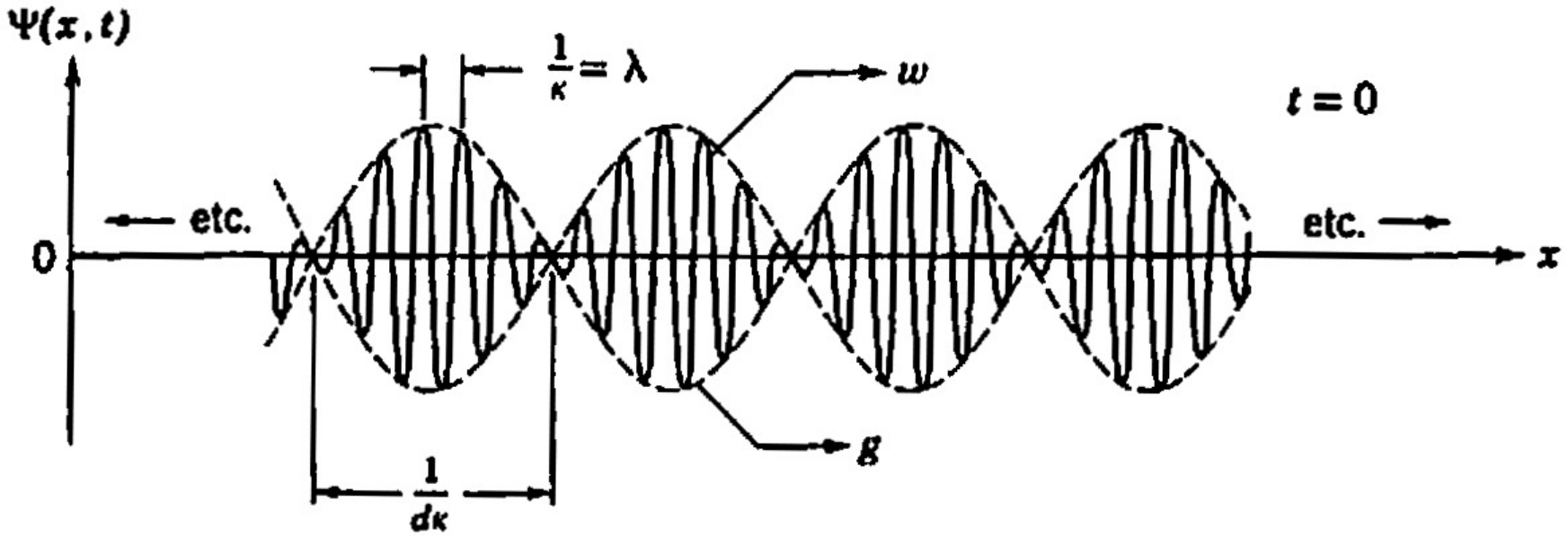
4 Minute 29 Second Intermission.

- Since paying attention for 1 hour and 15 minutes is hard when the topic is physics, let's take a 4 minute 29 second intermission.

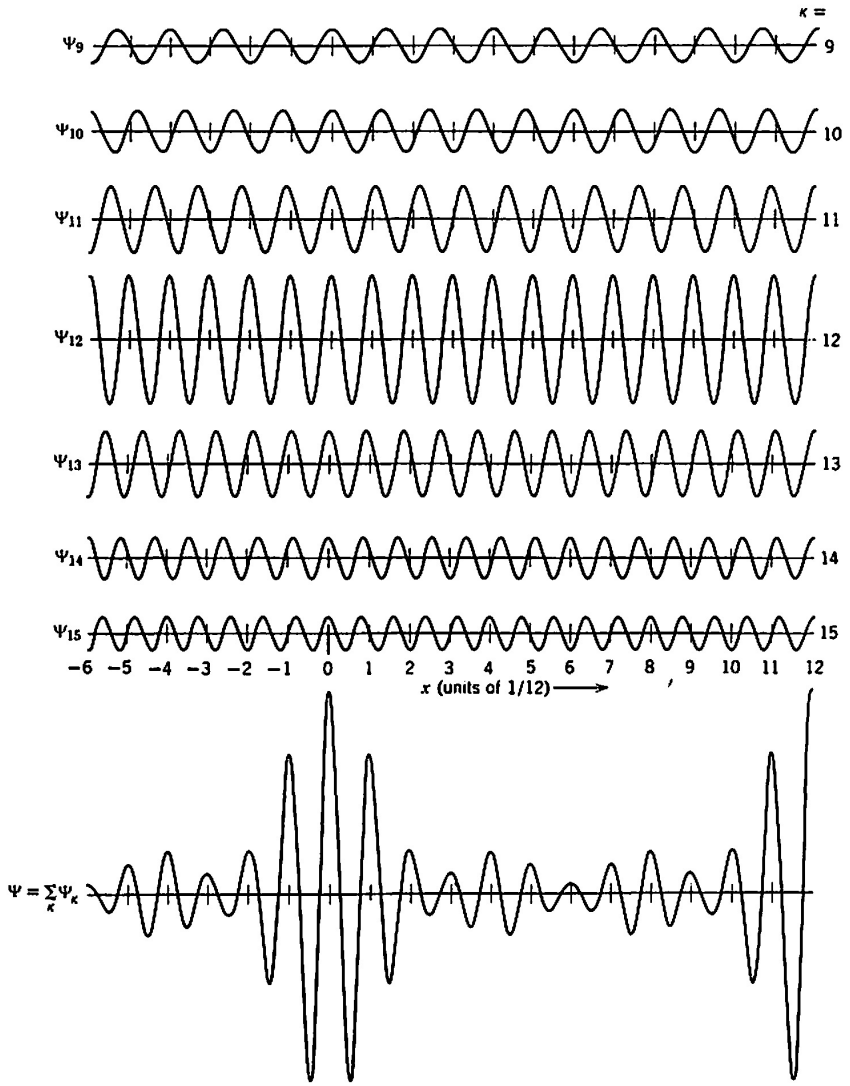
- You can:
  - Stretch out.
  - Talk to your neighbors.
  - Ask me a quick question.
  - Enjoy the fantastic music.

Describing a Particle in terms of Waves. Different Velocities.

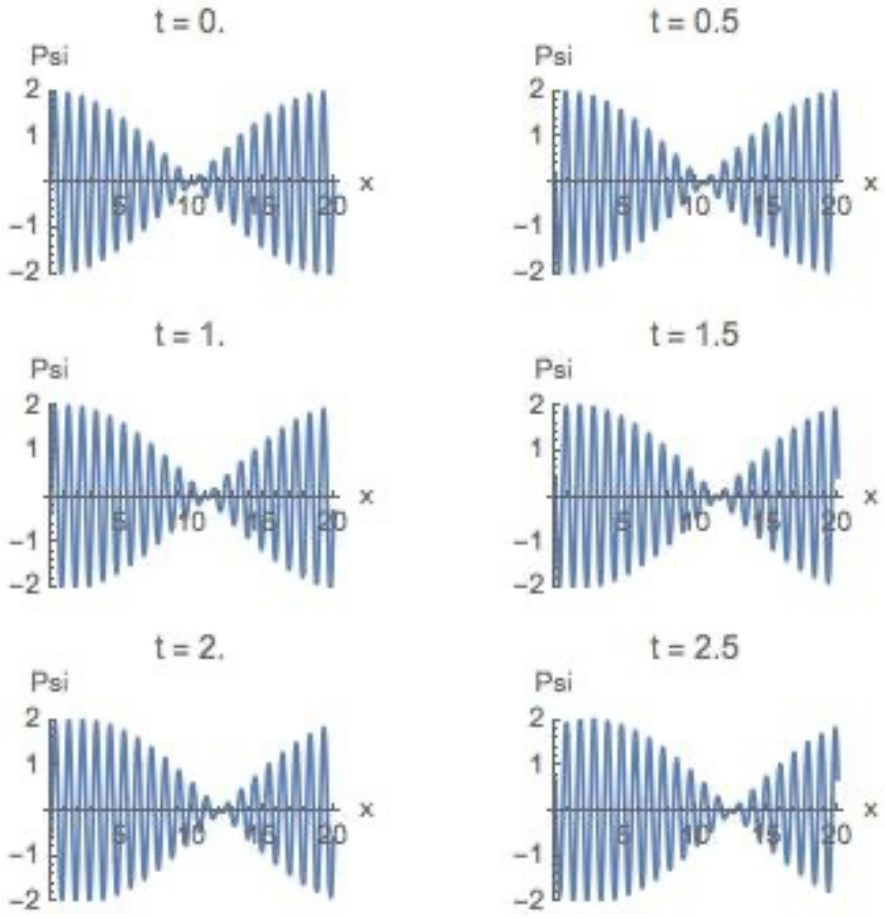




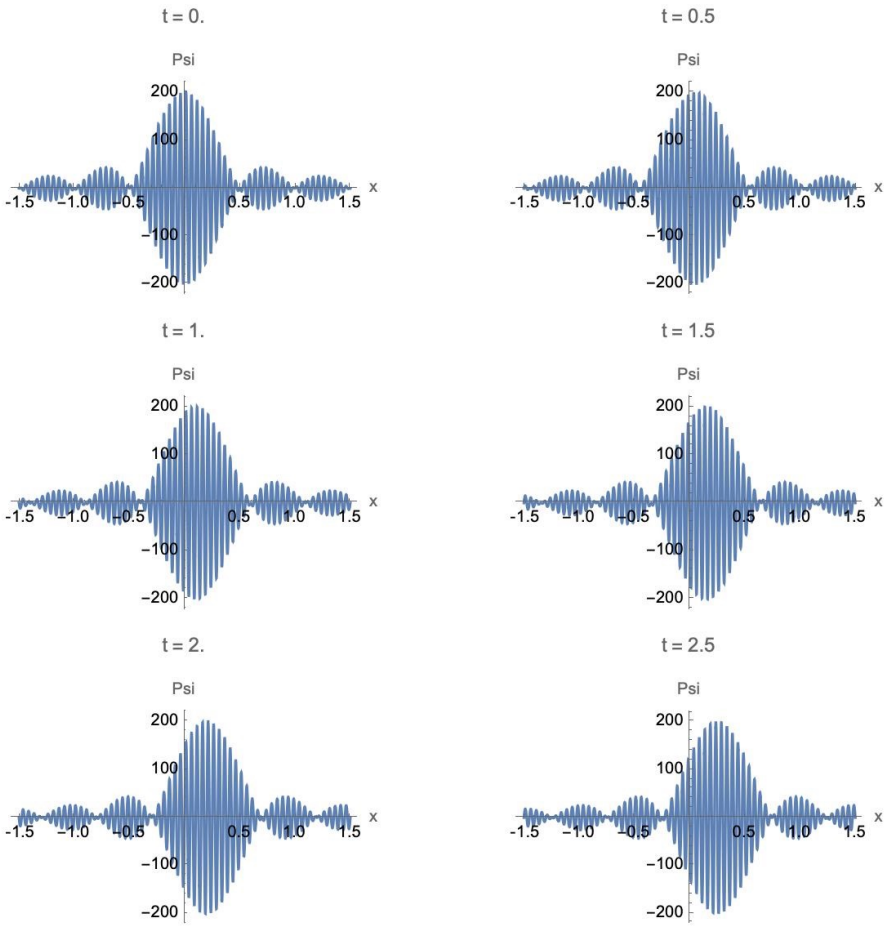
Adding waves to form a particle.



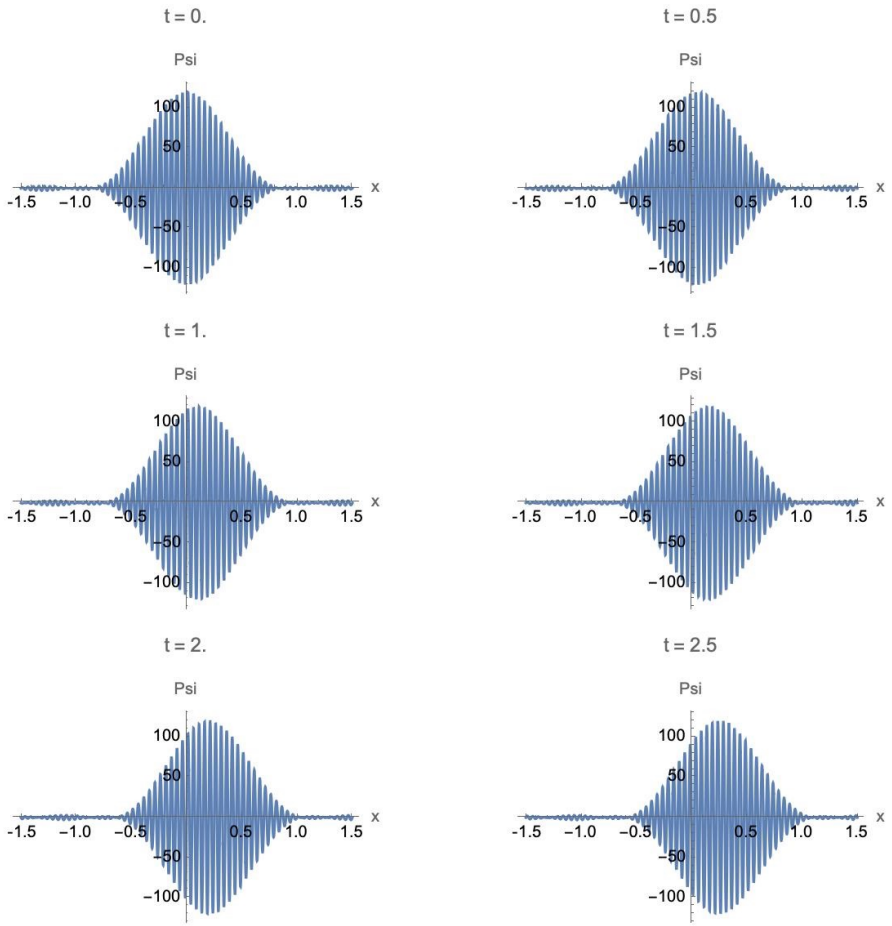
Add two matter waves with equal amplitude. $(\kappa,\nu) = (1\ m^{-1},1\ s^{-1}) + (1.05\ m^{-1}, 1.05\ s^{-1})$



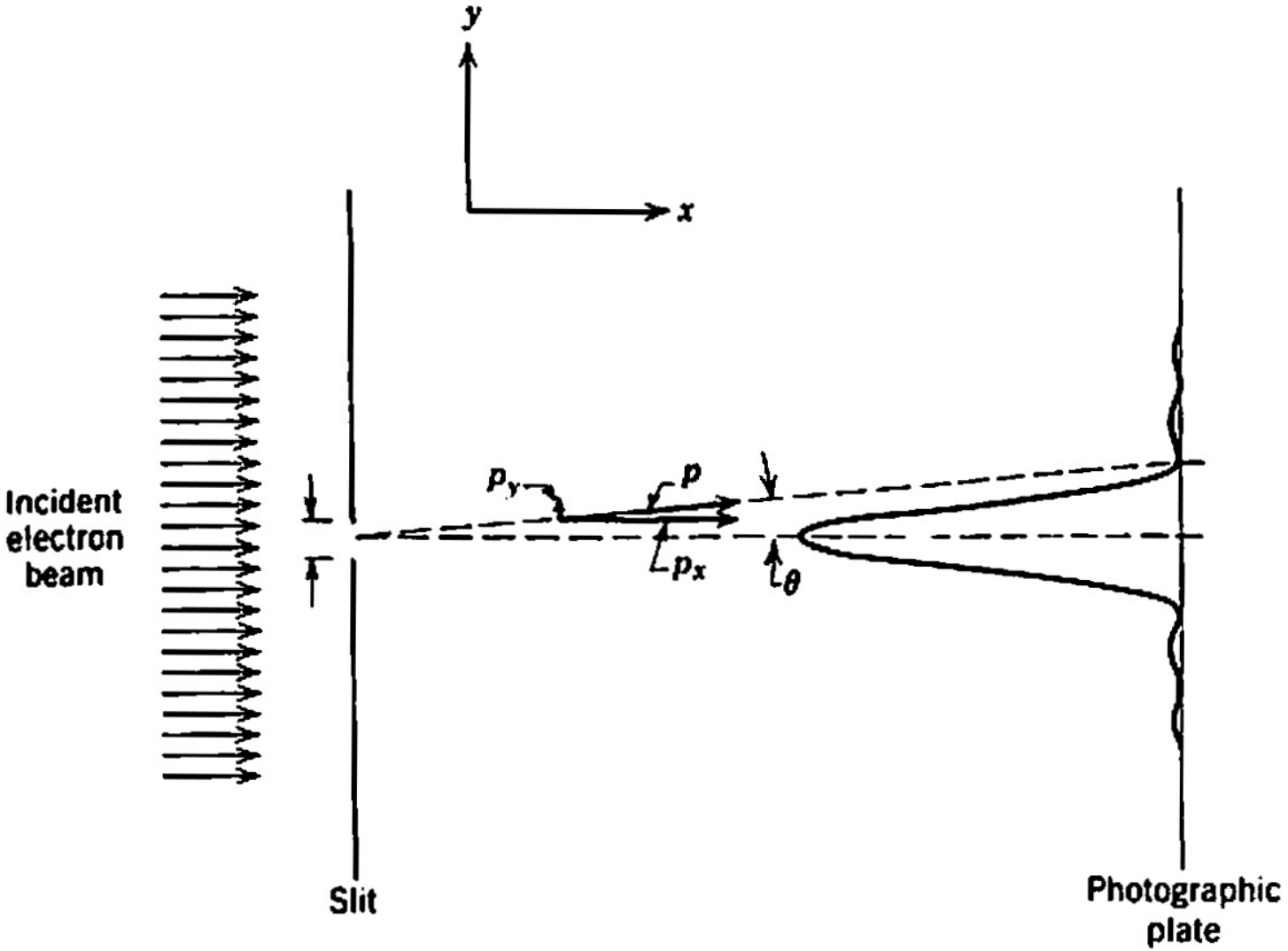
Add 201 matter waves with equal amplitude. $(\kappa,\nu) = (19\ m^{-1}, 0.9\ s^{-1}) + \ldots + (21\ m^{-1}, 1.1\ s^{-1})$



Add 201 matter waves with Gaussian amplitude.
$(\kappa,\nu) = (19\ m^{-1}, 0.9\ s^{-1}) + \ldots + (21\ m^{-1}, 1.1\ s^{-1})$



Electron Diffraction.



ENOUGH FOR TODAY?