

# SEMINAR IN PHYSICS

Friday, February 17, 2017

3:30-4:25 - Ross 0220

~ Refreshments! ~

## Interpretations of Wave-Particle Duality

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The main goal of this talk is to look at a highly non-intuitive topic in Physics, wave-particle duality, and help gain some basic intuition by looking at the problem through 3 different perspectives: Wave-particle duality in Quantum Mechanics, a physical approach, and a mathematical approach.

We will first look at the wave function and the role of collapsing the wave function to show properties of both a wave and a particle. Then we will look at the pilot wave theory and explore the results of the double slit experiment in an oil droplet environment. Finally, we will look at the Korteweg-de Vries equation (KdV) and its soliton solutions and see how they can mathematically model a particle-wave.

The goal is to give a broad region of explanations, allowing many types of students to have a basic intuition of wave-particle duality.