



## Quantum Interactive Learning Tutorials (QuILTs)

 Indicates a research-demonstrated benefit

### Overview

Guided-inquiry worksheets for upper-level quantum mechanics. Connect quantitative formalism to qualitative understanding and build physical intuition.



Type of Method

Curriculum supplement, Tutorials




Level

**Designed for:** Upper-level Undergraduate 

**Can be adapted for:** Graduate School  , Intermediate



Setting

**Designed for:** Lecture - Small (<30 students)  , Recitation/Discussion Session

**Can be adapted for:** Lecture - Large (30+ students), Homework, Studio



Coverage

Few topics with great depth



Topics

Modern / Quantum






Instructor Effort

Medium




Skills




**Designed for:** Conceptual understanding  , Making real-world connections, Using multiple representations, Metacognition

**Based on research into:** theories of how students learn  , student ideas about specific topics 



Research Validation

**Demonstrated to improve:** conceptual understanding 

**Studied using:** student interviews  , classroom observations  , research at multiple institutions 



Compatible Methods

[Peer Instruction](#), [PhET](#), [JiTT](#), [CGPS](#), [Physlets](#), [SCALE-UP](#), [OSP](#), [LA Program](#), [CAE TPS](#), [New Model Course](#), [TEFA](#), [CU Modern](#), [CU QM](#), [Paradigms](#), [PI QM](#), [Tutorials](#), [Clickers](#)



Similar Methods

[UW Tutorials](#), [ABP Tutorials](#), [OST Tutorials](#), [Lecture-Tutorials](#), [CU QM](#), [Thermal Tutorials](#), [Mechanics Tutorials](#), [PI QM](#), [Tutorials](#)



Developer(s)

Chandralekha Singh and PER team at the University of Pittsburgh



Website

<http://www.phyast.pitt.edu/~cls/quantum/>

