



Open Source Physics Collection

Indicates a research-demonstrated benefit

Overview

A project to spread the use of open source code libraries, tools, and compiled simulations for physics and other numerical simulations. The collection includes curriculum resources that engage students in physics, computation, and computer modeling. These resources provide students with new ways to understand, describe, explain, and predict physical phenomena.



Type of Method

Curriculum supplement, Computer simulations



Level

Designed for: Intro College Calculus-based , Intro College Algebra-based , Intermediate Undergraduate, Advanced Undergraduate, Graduate, Astronomy
Can be adapted for: High School , Teacher Preparation, Teacher Professional Development



Setting

Designed for: Lecture - Small (<30 students) , Lab, Homework, Studio
Can be adapted for: Lecture - Large (30+ students)



Coverage

Few topics with great depth, Many topics with less depth



Topics

Mechanics, Electricity / Magnetism, Waves / Optics, Thermal / Statistical, Modern / Quantum, Mathematical, Astronomy



Instructor Effort

Low



Resource Needs

Projector in class, Computers for student use in class, Computers for student use outside of class



Skills

Designed for: Problem-solving skills , Conceptual understanding of physics content , Connecting conceptual and mathematical understanding , Think like a scientist
Can be adapted for: Laboratory skills, Creativity, Autonomy



Research Validation

Based on research into: how students learn , student ideas about specific topics
Demonstrated to improve: scores on multiple choice conceptual tests , scores on written conceptual tests
Studied using: conceptual pre/post exams



**Compatible
Methods**

[Peer Instruction](#), [PhET](#), [UW Tutorials](#), [JiTT](#), [Ranking Tasks](#), [ILDs](#), [CGPS](#), [Physlets](#), [Context-Rich Problems](#), [RealTime Physics](#), [Workshop Physics](#), [TIPERs](#), [ABP Tutorials](#), [SCALE-UP](#), [Modeling](#), [SDI Labs](#), [OST Tutorials](#), [ISLE](#), [Thinking Problems](#), [Workbook for Introductory Physics](#), [LA Program](#), [PET](#), [PSET](#), [LEPS](#), [CAE TPS](#), [Lecture-Tutorials](#), [Astro Ranking Tasks](#), [MBL](#), [New Model Course](#), [CPU](#), [SCL](#), [TEFA](#), [CU Modern](#), [CU E&M](#), [CU QM](#), [QuILTs](#), [IQP](#), [Thermal Tutorials](#), [Mechanics Tutorials](#), [Energy Project](#), [SGSI](#), [Paradigms](#), [PUM](#), [EiP](#), [Tools for Scientific Thinking](#), [M&I Tutorials](#), [Clickers](#), [MOP](#)



**Similar
Methods**

[PhET](#), [Physlets](#), [CPU](#)



Developer(s)

Wolfgang Christian, Douglas Brown, Francisco Esquembre



Website

<http://www.compadre.org/OSP/>