

Best of MERLOT Physics*

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Outline

- Challenges in teaching physics at entry level in college
- Role of the Text vs role of MERLOT
- Offerings from MERLOT and tips on using them

*Posted online at <http://www.physics.buffalo.edu/~sen/teaching.htm>

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Support: SUNY Central

Challenges in teaching physics at entry level in college

- Science coverage in schools has excessive material – to pass Regents, focus is on facts (global issue)
- Intro course in college does concept + coverage (for some courses for non-science majors I start with ~130 and finish with ~65 passing),
- What help do students need?

Role of Text vs Role of MERLOT

- In intro physics courses the text is critically important and there are 2 or 3 very good ones ...
- Class notes are crucial
- Worked problems are where concept clarification happens
- Problem solving – typically interactive and online using commercial products – is where concept assimilation occurs
- MERLOT materials help most in concept clarification & some problem solving

Offerings from MERLOT

- MERLOT classic award winners are some of the most well constructed, tested and used resources online in physics in the world

Classical Mechanics (300)
Electricity and Magnetism (307)
General (240)
Modern Physics (291)
Optics (204)
Oscillations and Waves (230)
Quantum Mechanics (73)
Thermodynamics and Statistical Mechanics (138)

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Physlets
Author: Wolfgang Christian
Educational physics applets designed to be scripted in JavaScript for use in quizzes, homework problems, ...
Type: Collection
Date Added: Mar 14, 1998

PhET - Physics Education Technology at the University of Colorado
Author: Carl Wieman, Ron LeMaster, Mike Dubson, Sam Reid, Kathy Perkins, Wendy Adams, Noah Finkelstein, Noah Podolefsky
A collection of simulations and virtual labs focusing on first-year college physics.
Type: Collection
Date Added: Mar 03, 2004

Physics Illuminations
Author: Ron Greene
A collection of Java applets with accompanying text designed to help students understand concepts in...
Type: Tutorial
Date Added: Oct 08, 2004

HyperPhysics
Author: Rod Nave
Online tutorials covering a wide range of physics topics, including modern physics and astronomy. ...
Type: Lecture/Presentation
Date Added: Apr 28, 2001

Applets for quantum mechanics
Author: Manuel Joffe
This set of applets features illustrations of quantum mechanics through interactive animations in the...
Type: Simulation
Date Added: Mar 14, 1998

Editors Choice MERLOT

Peer Review ★★★★★
Comments (none)
Personal Collections (14)
Assignments (none)

Editors Choice MERLOT

Peer Review ★★★★★
Comments (none)
Personal Collections (1)
Assignments (none)

MERLOT CLASSICS

Peer Review ★★★★★
Comments (none)
Personal Collections (14)
Assignments (none)

MERLOT CLASSICS

Peer Review ★★★★★
Comments (none)
Personal Collections (10)
Assignments (none)
Author Snapshot

MERLOT CLASSICS

Peer Review ★★★★★
Comments (none)
Personal Collections (8)
Assignments (none)

Websites

Comprehensive sites

- <http://hyperphysics.phy-astr.gsu.edu/hbase/hph.html>
- <http://phet.colorado.edu/web-pages/simulations-base.html>
- <http://webphysics.davidson.edu/Applets/Applets.html>
- <http://www.rlgreene.org/Illuminations/html/IllumMain.html>
- <http://www.quantum-physics.polytechnique.fr/>

Focused sites that are excellent

- <http://intro.chem.okstate.edu/1314F00/Laboratory/GLP.htm> (teaching gas laws to non-science majors – focused item but an award winner)
- <http://www.merlot.org/merlot/viewMaterial.htm?id=85712> (thermal physics at the senior level, Austrian site)