



WebSights

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WebSights features reviews of select sites presenting physics teaching strategies, as well as shorter announcements of sites of interest to physics teachers. All sites are copyrighted by their authors. This column is available as a web page at <http://PhysicsEd.BuffaloState.Edu/pubs/WebSights>. If you have successfully used a site to teach physics that you feel is outstanding and appropriate for *WebSights*, please email me the URL and describe how you use it to teach. The person submitting the best site monthly will receive a T-shirt.

Conceptual Learning Approach to Waves (Project CLAW) website:

<http://electron.physics.buffalo.edu/claw/>.

This website contains a large number of Flash simulations on waves, their behavior and interactions. Each section of the website also has questions that relate to the simulations that are meant to check for understanding of the important concepts. Nominated by the author Frank Nappo of Lockport HS Physics <fjnap-po@aol.com>, who solicits reader input.

Jearl Walker's Flying Circus of Physics website

and blog: <http://www.flyingcircusofphysics.com>.

The Flying Circus of Physics (earlier versions with and without answers) was a well-known book in the physics world that just went through a new edition. Walker is famous for popularizing the leidenfrost effect demos (with molten lead, liquid nitrogen, and hot coals) and the bed of nails demo, and his website contains many pictures of these (readers are strongly cautioned not to try these without guidance and Walker can be contacted via the website). An entertaining physics website nominated by John Hubisz, editor of the *Book Reviews* column.

Brant Hinrich's collection of web resources used for teaching modern physics topics:

• **Relativity:** These two links are for college-level materials. The University of Washington Physics Education Research Group has researched and developed Tutorials in Introductory Physics: <http://www.phys.washington.edu/groups/peg/tut.html>. There are relevant paper-and-pencil tutorials and homework on 1-D Relative Motion, Wave Properties of Matter, and the Photoelectric Effect. The instructor's guide contains pre-tests and sample exam questions. Rachel Scherr's dissertation, <http://www.compadre.org/per/items/detail.cfm?ID=4773&S=5>, contains her research on many topics in special relativity, and the appendices include pre-tests, tutorials, and homework for the concepts of Events

and Reference Frames, Measurement, Simultaneity, and Synchronization and Causality.

• **Conceptual Quantum Mechanics:** The first URL points to materials that were developed for high school students, but are appropriate for introductory college students as well. The other two links are for college-level material. The Kansas State Physics Education Group has researched and developed a wide suite of simulation-based tutorials called *Visual Quantum Mechanics*: <http://phys.educ.ksu.edu/>. Topics include Solids & Light, Waves of Matter, Potential Energy Diagrams, Luminescence, and Exploring the Very Small. The University of Maryland Physics Education Research Group has researched and developed A New *Model Course in Quantum Mechanics*: <http://www.physics.umd.edu/perg/qm/qmcourse/welcome.htm>. Materials, which are paper-and-pencil or computer-based include Tutorials, Applied Homework, Essay Questions, and Software. There is also an instructor's guide and a section on "Understanding How Students Learn." The University of Colorado Physics Education Research Group has developed a vast array of online simulations through their **Physics Education Technology** (PhET) initiative that include 17 on Quantum Phenomena: <http://phet.colorado.edu/web-pages/index.html>. Besides the standard topics they also cover Double Wells and Covalent Bonds, Nuclear Physics, Conductivity, Semiconductors, Band Structure, Stern-Gerlach, etc.

• **Advanced (Mathematical) Quantum Mechanics:** The University of Pittsburgh is researching and developing Quantum Interactive Learning Tutorials (QuILT): <http://www.phyast.pitt.edu/~cls/quantum/>. Topics include Time Evolution of Wave Functions, Product Spaces, Quantum Measurement, Expectation Values, etc.

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