

Quantum Mechanics Lecture Demonstrations and Interesting Links

- Harmonic oscillator simulation. Can vary mass and force constant
<http://www.msu.edu/user/brechtjo/physics/oscillator/oscillator.html>
- Ripple applet with two movable sources to demonstrate traveling waves in 2D
<http://webphysics.davidson.edu/Applets/Ripple/Ripple.html>
- Transverse and longitudinal waves. Can vary modes
<http://www.cbu.edu/~jvarrian/applets/waves1/longitudinal.htm>
- Electromagnetic wave. Shows E, B, transverse character
<http://www.phy.ntnu.edu.tw/~hwang/emWave/emWave.html>
- Diffraction from single slit: color and slit width variation possible
<http://www.lightlink.com/sergey/java/java/slitdiffr/index.html>
- Double slit interference using Huygens principle. Vary λ and slit spacing
<http://www.phy.ntnu.edu.tw/~hwang/doubleSlit/doubleSlit.html>
- Double slit diffraction. Vary counts, number of diffraction fringes
<http://yvette.ensta.fr/~joffre/applets/young.html>

- Superposition of first 2 eigenfunctions for particle in box. Can vary mean energy between these two values
<http://yvette.ensta.fr/~joffre/applets/puits.html>

- Steps and Barriers in one dimension. Can vary mode and energy. Slow to load, but very good
<http://yvette.ensta.fr/~joffre/applets/marche.html>
- STM pictures from Don Eigler's group at IBM
<http://www.almaden.ibm.com/vis/stm/stm.html>
- STM of Buckyballs
<http://www.mobot.org/jwcross/spm/>
- AFM cantilever picture
<http://www.research.ibm.com/topics/popups/serious/nano/html/afm.html>
- Principle of AFM
<http://www.mobot.org/jwcross/spm/>
- Biological AFM images
<http://www.mobot.org/jwcross/spm/applications.htm>

- Interesting article on superposition in NY Times, July 11,2000
<http://www.nytimes.com/library/national/science/071100sci-quantum-mechanics.html>
- High level lecture notes on quantum computing
<http://theory.caltech.edu/people/preskill/ph229/#lecture>
- Good site on quantum computing
http://www.doc.ic.ac.uk/~ids/quantum_computing.html
- Excellent site on quantum computing with very readable tutorials
<http://www.qubit.org/>

- Good list of links to readable articles on quantum computing
<http://www.research.att.com/~shor/linklist.html>
- Press release by IBM on NMR based quantum computer
http://www.research.ibm.com/resources/news/20000815_quantum.html#history
- Pretty high level tutorial on quantum computing
<http://www.sees.bangor.ac.uk/~schmuel/comp/comp.html>
- This is THE ARTICLE you want to read on entanglement and teleportation. Actually quite understandable. Experiment and the foundations of quantum physics, Anton Zeilinger, Reviews of Modern Physics, Vol 71, No. 2 S288-S297 (1999). You can print this out from the electronic journals list on the UW Library web page.
- Harmonic oscillator eigenfunctions. Can vary energy, see wavefunctions
<http://webphysics.davidson.edu/Applets/Eigenvalue4/SHO.html>
- Larmor precession. Can change orientation of view
<http://yvette.ensta.fr/~joffre/applets/larmor.html>
- Spherical harmonics generator. Can display l, ml
http://wwwvis.informatik.uni-stuttgart.de/~kraus/LiveGraphics3D/java_script/SphericalHarmonics.html
- H atom radial functions and radial probability distribution. Can choose n, l. Solves for energy for which there is convergence of wavefunction to zero amplitude as r increases
<http://www.kw.igs.net/~jackord/bp/i6.html>
- Rovibrational spectrum simulator. Lots of variables
<http://ir.chem.cmu.edu/irproject/applets/spectro/Applet.asp>