Dan MacIsaac, Column Editor, Physics Department, SUNY-Buffalo State College, Buffalo, NY 14222; macisadl@buffalostate.edu

WebSights *features announcements and reviews of select sites of interest to physics teachers. All sites are copyrighted by their authors. This column is available as a web page at PhysicsEd.BuffaloState.Edu/pubs/WebSights/. If you have successfully used a physics website that you feel is outstanding and appropriate for* WebSights, *please email me the URL and describe how you use it to teach or learn physics—macisadl@buffalostate.edu.*

Eric Mazur "Confessions of a Converted Lecturer," 90-minute recorded seminar as presented to the Perimeter Institute, pirsa.org/10110081

Eric Mazur is an optical experimental physicist from Harvard with a significant presence in U.S. physics education, largely due to his promotion of Peer Instruction, mazur-www.harvard.edu/education/educationmenu.php. He has toured widely and his 90-minute presentation on changing what happens in physics lectures has been taped and is available online from several sources, including YouTube (there are clear PowerPoint slides at www.cwsei.ubc.ca/Files/Mazur_talk.pdf as well). Recently I was redirected to a recording of this presentation in the Perimeter Institute Recorded Seminar Archive, and rewatched it (I've seen it live twice, and there are plenty of technical shortcomings in the online recordings, but not enough to make them unenjoyable). Mazur discusses his development as a physics instructor, including his early traditional lecture instruction at Harvard and feeling of unease that despite his strong student evaluations and exam performances his students weren't learning important ideas in introductory physics. He described his traumatic encounter with Hestenes' Force Concept Inventory (FCI) instrument that indicated his own Harvard students not only had significant problems understanding basic Newtonian mechanics, but also that his award-winning standard instruction was still not very effective in producing student conceptual growth in basic mechanics. Mazur describes this with data taken from Hake's paper and Harvard students. He then discusses problem solving and standard textbook problems, again using Harvard data showing the considerable difficulty students have with problems that require conceptual understanding in dc circuits despite showing considerable success with standard exercises that do not rely on conceptual understanding.

Mazur's presentation is quite powerful and enjoyable for any instructor of introductory physics. Important questions regarding the meaning of education, insights from Physics Educational Research into introductory physics teaching practices, the roles of student textbook reading responsibility and peer classroom interaction are all raised and addressed. If you haven't seen the Mazur presentation, fire up a bowl of popcorn, grab a colleague (you will want to talk to someone about these ideas), download the slides and watch the Perimeter Institute recording.

Some References

R. R. Hake, "Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses," *Am. J. Phys.* **66** (1), 64–74 (Jan. 1998); dx.doi.org/10.1119/1.18809.

D. Hestenes, M. Wells, and G. Swackhamer, "Force Concept Inventory," *Phys. Teach.* **30** (3), 141–153 (March 1992); dx.doi.org/10.1119/1.2343497.

Also, please note that the Perimeter Institute is still accepting applications from physics teachers and students for their summer programs at issyp.ca and einsteininstitute.ca.

Chuck Britton redirected me to this important resource via the PHYS-L listserv.

Measuring the Earth's Rotation with a PlayStation Move controller, hackaday.com/2011/02/19/measure-earths-rotation-with-playstation-move/

Though there are plenty of Wii controller physics projects described online and in journals (including this one), other controllers exist and this site presents a nice project using the dual axis gyroscope contained in a PlayStation Move controller mounted on an audio turntable. By using the turntable to create a well-controlled regular low-frequency rotation in the gyroscope measurements and time averaging thousands of rotations (and shielding the apparatus from the Earth's magnetic field), the rotation of the Earth can be measured. In turn, from this the latitude of the apparatus can be calculated (as was originally demonstrated by M. Foucault in the Panthéon in Paris in 1851).

Submitted by Michael Magnuson, Canisius HS Physics

Do-it-yourself personalized, randomized homework assignments using a spreadsheet, www.teachscience.net/2011/02/16/diy-personalized-randomized-assignments/

Ed Hitchcock, a high school science and physics teacher from Toronto, describes how to use a random number generator to produce individual student homework exercises in this nicely illustrated and written short piece. Very useful if you don't have access to a higher-end online homework system. Note his blog contains other physics teaching ideas.

Submitted to the Modeling-L list by Frank Noschese of John Jay High School physics (Cross River NY)