

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.

• **Astronomy education resources and news: Astronomy Education Review (AER) electronic journal closes down, see obituary, permanent AER archives and resources from** <http://scitation.aip.org/content/aas/journal/aer/12/1/10.3847/AER2013017>

According to Fraknoi's obituary, the *AER* ran for almost 12 years, publishing astronomy education research and making it freely available via the web before recently becoming a victim of insufficient papers, few readers, narrow coverage, and budgetary constraints. The American Astronomical Society (AAS) will keep the *AER* archive online in perpetuity, and is reviewing how the society might support astronomy education via other publications. In addition to expected research articles on astronomy education, the *AER* published cultural articles, in 2012 reviewing over 100 pieces of classical and popular music inspired by astronomical ideas and organized into categories, e.g., black holes, planets, etc. at http://aer.aas.org/resource/1/aerscz/v11/i1/p010303_s1?view=fulltext. In 2011, *AER* published an annotated overview of 98 astronomy applications for smartphones and tablets, which featured brief descriptions and direct URLs: <http://dx.doi.org/10.3847/AER2011036>. The listing includes a variety of apps for displaying and explaining the sky above you (some using the GPS function in your device); a series of astronomical clocks, calculators, and calendars; sky catalogs and observing planners; planet atlases and globes; citizens science tools and image displays; a directory of astronomy clubs in the U.S.; and even a graphic simulator for making galaxies collide.

Fraknoi also reports that the "Silicon Valley Astronomy Lectures," featuring astronomers giving nontechnical lectures on recent developments in astronomy, are now available on their own YouTube Channel, at: <http://www.youtube.com/SVAstronomyLectures/>. The lectures are taped at Foothill College near San Francisco and co-sponsored by NASA's Ames Research Center, the SETI Institute, and the Astronomical Society of the Pacific.

Submitted by Andrew Fraknoi, founding editor of AER.

• **Reflection and refraction of light waves (explanation by Huygens' principle): A Java applet presenting Snell's law by Walter Fendt**

<http://www.walter-fendt.de/ph14e/huygenspr.htm>

While hardly new, I have used this applet upon multiple occasions in two classes I taught this semester, and will again use it in two classes next semester and feel that I should therefore proclaim its utility to anyone teaching E&M, waves, or optics who is establishing connections between the three topics. This animated applet powerfully

illustrates how Huygens' principle can be used to explain reflection and refraction (and determine Snell's law) given different speeds of propagation in different materials. I include this applet when transitioning to optics in my E&M course, and for juxtaposing the ray, wave, and QED models of light reflection and refraction to more advanced students. A wonderfully executed animation, translated by Taha Mzoughi.

• **Several National Survey of Science and Mathematics Education 2012 reports released**

<http://bit.ly/17lmkst>

NSSME has just released several new reports from the 2012 National Survey of Science and Mathematics Education. As expected, much insecurity and inequity is reported from teacher surveys, particularly with respect to elementary science, physics, physical science, and mathematics instruction.

• **Comet ISON in the news**

<http://www.solarsystemscope.com/ison/>

<http://www.isoncampaign.org/>

<http://isonatlas.wordpress.com/>

http://solarsystem.nasa.gov/scitech/display.cfm?ST_ID=2566

There is much public interest and fanfare for sun-grazing comet ISON (named after the International Scientific Optical Network), including an excellent interactive model from solarsystemscope.com/ison. ISON (or its remnants) should give a nice show on its outbound flight about sunrise and sunset in December, brightest in early December and becoming both a morning and an evening object in the Northern Hemisphere towards late December, according to amateur astronomer and blogger Stuart Atkinson's excellent ISON atlas collection.

• **SpectraSnapp applet and device for iPhone/iPad cameras**

<http://physicsbuzz.physicscentral.com/2013/02/turn-your-phone-into-spectrometer-for.html>

<http://www.aps.org/publications/apsnews/201302/scienceapp.cfm>

A clever free applet and handmade device using ubiquitous iPhone (yes, Android versions are also available) cameras as spectrometers, calibrated by comparison with Hg lines in ubiquitous fluorescent tubes. This version uses a transmission grating readily obtained from \$1 glasses sold by science-stuff.com (one pair of glasses makes two spectrometers). Well done, James Roche of APS Outreach.