

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/](http://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](mailto:macisadl@buffalostate.edu).

### • Microwave polarization of cosmic microwave background radiation detection announced

<http://tinyurl.com/WS-NYT-BICEP2>  
<http://profmattstrassler.com/2014/03/18/>  
<http://tinyurl.com/WS-MP-BICEP2>  
<http://tinyurl.com/WS-Ver-CMBR>

On March 17th of this year the BICEP2 (Background Imaging of Cosmic Extragalactic Polarization–2nd generation) collaboration team announced that they had detected B-mode polarization in the CMBR consistent with inflation and gravitational waves theorized in the early universe following the Big Bang at a confidence level of  $r = 0.20$ . BICEP2 is an Antarctic microwave radio telescope run by a team led by the Harvard-Smithsonian Center for Astrophysics. If findings and interpretations are confirmed, this is Nobel level confirmation science. Given the considerable (and laudable) public interest in cosmology, physics teachers should know a little bit about this event, so above find links to a *NY Times* piece on the event, a theoretical physicist's interpretation for laymen regarding the significance of the finding, and two popularization video vignettes on the event from Reich's "Minute Physics" and Muller's "Veritasium" video collections on YouTube.

### • Astronomical Society of the Pacific releases updated resource guide to science fiction with good astronomy

<http://www.astrosociety.org/education/resources/scifi.html>

A revised and updated resource guide to science fiction stories with good astronomy and physics is now available at the educational website of the non-profit ASP. This edition of the guide includes over 270 stories organized into more than 40 topical categories, including the URLs for a number of stories that are freely available online.

**Editor's note:** The listed stories could be used for class supplements, a timely addition to the recent (Feb. 2014) article by Singh discussing using science fiction stories in the classroom. A recent quiz in my PHY308 optics course examined the "slow light" of Singh's article and the work of Harvard optical physicist Lene Hau, and several of my students appreciated the SF references. *Announced by Andrew Fraknoi, Chair of Astronomy, Foothill College*

### • It's summer professional development time again for all physics teachers

<http://www.phystec.org/pd/>  
<http://modelinginstruction.org/teachers/workshops-2014/>  
<http://www.aps.org/programs/honors/new-recipients.cfm>  
<http://aapt.org/Conferences/sm2014/>

As is traditional every May issue, I remind readers there are many physics teaching professional development opportunities and research experience for teachers (RET) opportunities, kindly collected at the Phystec website clearinghouse. In particular, Modeling Physics recently received the 2014 Excellence in Physics Education Award from the APS and this summer

there will be Modeling Physics courses offered in at least 16 states. I am particularly gratified to see the Modeling Physics opportunities now abounding in New York City. Also consider attending the late July AAPT National Meeting in Minneapolis, and the Physics Education Research Conference (PERC) immediately following it.

### • A center of mass lesson from sports, and solar system scaling for students

<http://ed.ted.com/lessons/an-athlete-uses-physics-to-shatter-world-records-asaf-bar-yosef>  
[http://joshworth.com/dev/pixelspace/pixelspace\\_solarsystem.html](http://joshworth.com/dev/pixelspace/pixelspace_solarsystem.html)

"An athlete uses physics to shatter world records" by Asaf Bar-Yosef is a TED-Ed video plus short quiz and discussion board dedicated to the physics of the Fosbury Flop in the track and field high jump event. At the 1968 Olympic Games, Dick Fosbury revolutionized the high jump event by jumping over the bar backwards, passing the athlete's center of mass underneath the bar where previously athletes threw their center of mass over the bar. A nicely done practical example of c.m. extendible to energy analysis.

"If the Moon Were Only 1 Pixel" by Josh Worth is one long, continuous side scroll revealing the high-inconceivable emptiness of our solar system. The empty screens are punctuated with student-appealing layman's comments. I have been told this is very popular with students on their own digital devices, particularly iPads.

### • NAS Publications: Undergrad chemistry education and engineering talent

[http://nap.edu/catalog.php?record\\_id=18555](http://nap.edu/catalog.php?record_id=18555)  
[http://www.nap.edu/catalog.php?record\\_id=18626](http://www.nap.edu/catalog.php?record_id=18626)

The National Academy of Science has produced two short, interesting, and freely downloadable workshop/forum reports, the first one discussing the state of "Undergraduate Chemistry Education." I find it interesting to compare what we do in physics to other physical sciences and engineering, and appreciated scanning this freely available work, though the reader must generate a personal password to do so. The report discusses drivers and barriers to change in undergraduate chemistry (drivers), innovative course designs for large enrollment courses, student learning assessment tools (metrics), perspectives on the need for reform, and the dissemination of changes. Familiar stuff.

A second recent NAS release, "The Importance of Engineering Talent to the Prosperity and Security of the Nation," describes other (non-U.S.) national efforts in fostering, recruiting, and retaining engineering talent and the impact this has on the United States, which long has benefitted from attracting the best minds worldwide. Now that other countries are getting proactive about fostering engineering talent, there are impacts on the U.S. economy, security, and well being. One key insight: "The United States can no longer assume that the best engineering talent in the world will want to come to this country."