

July 2012 Newsletter

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Current Events in Context: Higgs Boson



Installation of an optical alignment system. Image by [delaere](#).

Five decades and millions of hours of research might seem like a long wait, but for the group of physicists who discovered evidence of the Higgs Boson particle earlier this month, it was a mere blip in cosmic time and well worth the effort.

Finding conclusive evidence of this subatomic particle puts the finishing touches on the single most likely explanation (excluding gravity) for how the universe operates, called the Standard Model. Although further review of data is required, the experiments conducted at the famous European Center for Nuclear Research (CERN), found a particle matching the predicted mass and behavior of the elusive Higgs Boson.

The Higgs Boson is the missing seventeenth particle in a working model of subatomic relations between a group of sibling particles with exotic names like quarks, leptons, and gluons. The forces and energies that interact between these particles are what determine the set of behaviors observed in all matter.

While it's clearly time to pop the champagne, researchers speculate that the discovery may be a mixed blessing. As they start to sift through the experimental data and better understand the properties of this potential Higgs Boson, they will likely discover details that unravel earlier theories. But

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We hope you learned something new or refreshed your memory on a topic you've previously studied.

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OCW is grateful for the support of:

for all those physicists who love the thrill of the chase, that just means more research, which can't be all bad.

If you want to brush up on your quantum theory, OCW has published several courses that cover the Higgs Boson:

- [8.324 Relativistic Quantum Field Theory II](#)
  - [8.325 Relativistic Quantum Field Theory III](#)
  - [8.811 Particle Physics II](#)
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### New Courses

- [2.086 Numerical Computation for Mechanical Engineers](#)
- [7.345 Non-coding RNAs: Junk or Critical Regulators in Health and Disease?](#)
- [21F.315 Cross-Cultural Perspectives on Contemporary French Society](#)

### Supplemental Resource

- [Leadership and Empowerment: Resources from Graduate Women at MIT \(GWAMIT\)](#)
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### Updated Courses

- [6.005 Elements of Software Construction](#)
- [11.014J American Urban History II](#)
- [11.129 Educational Theory and Practice I](#)
- [12.540 Principles of the Global Positioning System](#)
- [17.433 International Relations of East Asia](#)
- [21A.226 Ethnic and National Identity](#)
- [21A.350J Cultures of Computing](#)
- [21F.040 A Passage to India: Introduction to Modern Indian Culture and Society](#)
- [21L.448J Darwin and Design](#)

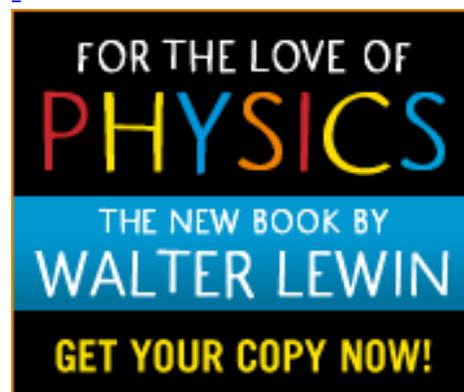
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## Highlights for High School

This past weekend, a huge asteroid flew by Earth at a distance of 3.2 million miles, well beyond the orbit of the moon. The asteroid was the size of a city block. Space enthusiasts were able to watch all of the action online during a live webcast of the event.

If you're interested in all things thing related to space, we highly recommend you take a look at our Chandra Astrophysics Institute course. Here you can learn about supernovas, black holes, and colliding galaxies.

> [See the Chandra Astrophysics Institute course](#)

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## OCW in the News

OCW has been selected as one of the "[Best Free Reference Web Sites](#)" for 2012 by a division of the American Library Association (ALA). The award is part of an annual series initiated by the MARS: Emerging Technologies in Reference Section of the Reference and User Services Association (RUSA) of the ALA to recognize outstanding reference sites on the World Wide Web.

The OCW site is one of 26 other websites to be recognized this year by a committee of member librarians from across the United States. Selection criteria include the quality, depth, usefulness and uniqueness of the content, as well as the ease of accessing the information. MARS noted that OCW content was "amazingly rich" and "a great resource for self-improvement and for college students who would like extra guidance ... in parallel courses."

> [Read more about the award](#)

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## Views from Supporters



"I'm from Pakistan and my college offered very few courses. I started using MIT OCW in 2006 and just learned by myself, specially advanced mathematics courses like Differential Equations, Linear Algebra, Analysis, and so on.

After graduating from college with excellent grades, I got a scholarship to go to LSE for a

Masters in Economics. While there, I learned a lot and realised how much more there is to learn.

Yesterday I finished my 1st year of PhD in Economics at Boston University. I will be taking some classes for real at MIT in the next few years.

All through my educational journey, the MIT OCW has been an invaluable source to supplement my classroom learning. I hope to become a regular supporter of this noble cause."

-Talal, Student, Pakistan

[> Read more](#)

Tell us what you think of OCW at [ocw-feedback@mit.edu](mailto:ocw-feedback@mit.edu).



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