



## Physics

### Wider Reading

- **Forces of Nature** – Brian Cox & Andrew Cohen
- **Angels and Demons** – Dan Brown
- **How to Teach Quantum Physics to Your Dog** – Chad Orzel
- **A Brief History of Time** – Stephen Hawking
- **Just Six Numbers** - *Martin Rees*
- **Quantum Theory Cannot Hurt You** - *Marcus Chown*
- **Why does  $E=mc^2$  ?** - *Brian Cox and Jeff Forshaw*
- **Fizz: Nothing is as it seems** - *Zvi Schreiber*
- **Great Physicists** - *William H. Cropper*

### Physics Articles

Below are some interesting articles about cutting edge physics research, organised into different areas of physics.

#### Gravitational Waves and General Relativity

- Einstein's gravity theory passes toughest test yet: Bizarre binary star system pushes study of relativity to new limits:

<http://phys.org/news/2013-04-einstein-gravity-theory-toughest-bizarre.html>

- First Direct Evidence of Cosmic Inflation: <https://www.cfa.harvard.edu/news/2014-05>
- This was one of the first articles announcing the discovery of gravitational waves from cosmic inflation in the early universe. However, their experiment was later shown to be flawed – you can read about this in the article below.

- Gravitational Waves from Early Universe Remain Elusive:

<http://www.jpl.nasa.gov/news/news.php?release=2015-46>

- Crashing Black Holes <http://calteches.library.caltech.edu/4298/1/BlackHoles.pdf>

#### String Theory

- Scientists find a practical test for string theory:

<http://phys.org/news/2014-01-scientists-theory.html>

- String theory: it's not dead yet:

<http://www.newscientist.com/article/dn11882-string-theory-its-not-deadyet.html#.VQa6AqzLcjU>

- Finally, a MAGIC test for string theory?:

<http://www.newscientist.com/article/dn12609-finally-a-magic-testfor-string-theory.html>

### **Quantum Computers**

- How Quantum Computers Work:

<http://computer.howstuffworks.com/quantum-computer.htm>

- The Father of Quantum Computing:

<http://archive.wired.com/science/discoveries/news/2007/02/72734>

- The Revolutionary Quantum Computer That May Not Be Quantum at All:

<http://www.wired.com/2014/05/quantum-computing/>

### **Materials Science**

- Scientists fabricate defect-free graphene, set record reversible capacity for Co<sub>3</sub>O<sub>4</sub> anode in Li-ion batteries:

<http://phys.org/news/2014-08-scientists-fabricate-defect-free-graphene-reversible.html>

- Stanene is '100% efficient', could finally replace copper wires in silicon chips:

<http://www.extremetech.com/extreme/171551-stanene-is-100-efficient-could-finally-replace-copper-wiresin-silicon-chips>

### **Particle Physics**

- It's a boson! But we need to know if it's the Higgs:

<http://www.newscientist.com/article/dn22029-its-aboson-but-we-need-to-know-if-its-the-higgs.html?page=1#.VQfooqzLdVw>

### **Astrophysics**

- How do we know dark matter exists?:

<http://phys.org/news/2015-03-dark.html>

- The corrugated galaxy: Milky Way may be much larger than previously estimated:

<http://phys.org/news/2015-03-corrugated-galaxy-milky-larger-previously.html>

- Solving the riddle of neutron stars:

<http://www.sciencedaily.com/releases/2015/03/150310074105.htm>

- Cosmology: First stars were born much later than thought:

<http://www.sciencedaily.com/releases/2015/02/150205131233.htm>

### **Enrichment Activities**

- Museum – The Faraday Museum at the Royal Institute
- TV Series – The Wonders of the Universe - BBC

