Term paper

Content

The paper will consist of a critical discussion of either some physical phenomenon or of an invention important to humanity which depends on the principles of physics in a non-trivial way. The paper should show how such a phenomenon or device works. A draft version of your paper will be peer-reviewed by your classmates. I expect of order 10 typewritten double-spaced pages. References should be made to material used to construct the paper and should be given in some standard form – I don't care which. However, at least three references for this paper should be "library" as opposed to WWW references.

Please read (and abide by) these recommendations when writing your paper.

Schedule

- Approval of topics by me: 1 February 2016.
- Two paper copies of draft version of paper due: 21 March 2016.
- Reviews due: 28 March 2016.
- Final version of paper due: 11 April 2016.

Suggestions for possible subjects are as follows:

- Lasers.
- Nuclear reactors.
- Bipolar transistors.
- Field effect transistors.
- Conductors and insulators.
- Black holes. – Cameron Klotz
- Neutron stars. – Ryas Wilson
- Quasars. – Robyn Ulibarri
- Interstellar gases and magnetic fields.
- Star formation.
- Nuclear fusion. – Tom Rood
- Superfluids.
- Radio interferometry.
- Parity non-conservation.

- Neutrinos.
- Radioactive dating.
- Atomic bomb. – Kathryn Jones
- Hydrogen bomb.
- Bose-Einstein condensates.
- The observable effects of general relativity.
- Cathode ray tubes.
- Liquid crystals.
- Magnetic recording.
- Doppler radar.
- Particle accelerators.
- X-ray machines.
- Nuclear magnetic resonance.
- Shell model of the nucleus.
- Geiger counters.
- Scintillation counters.
- Effects of nuclear radiation on life.
- Alpha, beta, and gamma decay.
- Radios.
- Big bang.
- Holograms.
- Jet propulsion.
- How precipitation forms.
- Physics of greenhouse effect.
- Formation of solar system.
- The atmosphere of Jupiter.
- Comets.
- Large-scale structure of the universe.

- Solar wind.
- Stellar evolution.
- Telescopes.
- Storm lightning.
- Active galactic nuclei.
- Transistors.
- Earth's magnetic field.
- Physics of flight. – Timothy Araujo
- Gamma ray bursts.
- Principle of least action.
- Cloud physics.
- Ion engines and space exploration.
- Gravitational waves. – Andres Ortiz
- Biological physics.
- Pulsars.M
- Hurricanes.
- Nuclear space propulsion.
- Structure of atomic nuclei.
- Cherenkov radiation.
- Dark matter. – D. C. Sessions
- Photography. – Nekeisha Johnson
- EPR paradox. – Malia Chevalier
- Schrödinger/Dirac equations. – Caleb Hightower

There will be one person per topic – first come, first serve on "hot" topics! Let me know what you want to do before the deadline.