LSU College of Science

LSU Department of Physics & Astronomy

Weekly Calendar & News

April 29 – May 1, 2017

Departmental Colloquium

Neutrinos: the lightest matter can have the heaviest consequences!

David Wark
Oxford University and STFC Rutherford Appleton Laboratory

3:30 PM Wednesday, May 3

435 Nicholson Hall (Tentative room)

• Refreshments served at 3:10 PM in 232 (Library) Nicholson Hall •

The neutrino is the problem child of the Standard Model of Particle Physics - it was originally proposed because of problems it caused to other measurements, and it has rarely had the good manners to behave as theorists predict it will. Understanding neutrinos is, however, critical to an understanding of the most fundamental laws governing the universe and of the properties of the universe on all scales. The importance of understanding neutrinos was recognized by the 2015 Nobel Prize in Physics and the 2016 Breakthrough Prize in Physics, but we nonetheless are far from a complete description of how they fit into our world. The talk will give a brief history of how we got to where we are, and a look ahead at some experiments that are coming up and where potential new surprises could lie.

New Publications

- "Observations of V0332+53 during the 2015 Outburst using Fermi/GBM, MAXI, Swift, and INTEGRAL" by Zach Baum, Mike Cherry, and James Rodi, Monthly Not. Royal Astron. Soc. 467, 4424 (2017)
- "Primordial power spectra for scalar perturbations in loop quantum cosmology" by Daniel Martín de Blasa and Javier Olmedob, Journal of Cosmology and Astroparticle Physics, Volume 2016, June 2016

Special Colloquium

How do biology processes differ from those of physics?
What different mathematical descriptions are needed in these two case?

George Ellis
University of Cape Town, South Africa

11:30 AM Thursday, May 4
435 Nicholson Hall

The key link between physics and life is provided by bio-molecules, such as voltage gated ion channels. Through their structure they enable logic to emerge from the underlying physical laws, and for example underlie information processing in the brain via action potential spike trains governed by the Hodgkin-Huxley equations. They can exist because of the nature of possibility spaces for protein structures shaped by the underlying physics (as described by Andreas Wagner in his book Arrival of the Fittest), but can only have come into being via the contextually dependent processes of natural selection, which selects them for their biological function.

LSU Physics & Astronomy in the News

- Lorenzo and Olivier Receive NSF Graduate Research Fellowships http://www.lsu.edu/physics/news/2017/04/lorenzo_oliver_nsf_fellowship.php
- 2017 Annual Physics & Astronomy Awards Ceremony Photo Gallery http://www.lsu.edu/physics/news/photo-gallery/2017-annual-awards-ceremony.php
- Science Fashion at LSU - Top Picks for Spring 2017 We have the #2 & #4 top science fashion picks at LSU
- Dr. Boyajian was interviewed on WBRZ to talk about Tabby's Star and the research at LSU. http://www.wbrz.com/videos/stargazers-prepare-to-look-upward-for-astronomy-day

Events

- **Highland Road Park Observatory: International Astronomy Day**
  - **Where:** Highland Road Park Observatory
  - **When:** Saturday, April 29, 2017 3:00 11:00 PM
- **Landolt Astronomical Observatory Public Star Party / Open House**
  - **Where:** Nicholson Hall roof - Landolt Observatory,
  - **When:** Saturday, April 29, 2017 9:00 PM - 10:00 PM

- Physics and Astronomy Annual Crawfish Boil
  - **Where:** Quad side of Nicholson Hall
  - **When:** Friday, May 5, 12 PM
  - Please see **Shanan Schatzle,** Business Manager, in 202-H to make your reservation and payment. Cost: $8 - Students $10 - Staff (Admin., Shop and Researchers) $12 - Faculty