LSU College of Science Department of Physics & Astronomy

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Weekly Calendar and News

October 22-29, 2016

Departmental Colloquium

"Quantum Trajectories, Decoherence, and What One MIGHT Read from the Environment"

Howard Carmichael
University of Auckland, New Zealand

3:30-4:30 pm Thursday, Oct. 27, 2016

Room 109 Nicholson Hall

Host: Jonathan Dowling

Recent experiments with superconducting qubits have dramatically changed the landscape for addressing elementary quantum systems - both in the preparation and measurement of quantum states. Even the reconstruction of individual quantum trajectories is now carried out. In this talk, I first introduce the idea of a "quantum trajectory," where I contrast the jump trajectory of photon counting with the diffusive trajectory applicable to superconducting qubits. I then explore two applications, one related to the infamous Schrodinger cat and the other to the Bohr-Schrödinger discussion of quantum jumps from 1926; both, in a modern context, illuminate the meaning of that catchword "decoherence."

New Publications

- Kim, Jin, Zhang & Plummer, et al. "Interrogating the superconductor $Ca_{10}(Pt_4As_8)(Fe_{2-x}Pt_xAs_2)_5$ Layer-by-layer." *Scientific Reports* **6**, Article number: 35365 (2016). http://www.nature.com/articles/srep35365

- Javier Olmedo. "Evolution in Totally Constrained Models: Schrödinger vs. Heisenberg Pictures" International Journal of Modern Physics D, 1642004 (2016). https://arxiv.org/abs/1604.08129

LSU Physics & Astronomy in the News

- **This Star is not following rules of universe and LSU scientists among those looking into why**
  Tabby Boyajian and Brad Schaefer talk about "Tabby's Star," or KIC 8462852, dimming over the long term while at the same time experiencing random dips in brightness.
  http://www.theadvocate.com/baton_rouge/news/environment/article_0f701398-8ffd-11e6-acb7-2372979ad6f3.html

- **Thinking Outside the Box**
  Guang Jia and graduate student Joe Steiner, have pulled together radiation technologies, processes, and equipment from a variety of areas in medical physics to arrive at a better diagnostic tool for early detection of prostate cancer.
  http://www.lsu.edu/physics/news/2016/10/Jia.pdf

- **Medical Physics and Mary Bird Perkins Cancer Center Team Up to Beat Cancer**
  This partnership is providing students with unique training opportunities, researchers with facilities and resources that are hard to find, and most important, patients with the latest innovations and techniques for improved outcomes in their cancer treatment.
  http://www.lsu.edu/physics/news/2016/10/partenership.pdf

"What I did with My Physics Degree"

- **Speaker:** Leanne Truehart
- **Where:** Nicholson Hall Room 119
- **When:** Friday, October 21 4:00 PM

Saturday Science

- **Topic:** "We are all Stardust"
- **Speaker:** Catherine Deibel
- **Where:** Nicholson Hall Room 130
- **When:** October 29 10:00-11:15 AM

Alumni Tailgate

- **Where:** Quadrangle of LSU campus
- **When:** Saturday, October 22, 2016 3:00- 6:00 PM
- **What:** Join us for Physics & Astronomy alumni tailgate! Reconnect with fellow alumni and former professors and meet current students while enjoying jambalaya and LN2 ice cream in the Quad.

What I Did with My Physics Degree

LSU alumna Leanne Truehart shares her experience from physics degree to psychiatrist

Friday
Oct. 21
4:00 p.m.
Room 119
Nicholson Hall
Join us with
FREE PIZZA

Leanne Truehart

B.S., Physics, 1990, LSU

Doctor of Medicine (M.D.), 1994, Washington University (St. Louis)

Psychiatry Residency Program, 1998, UCLA

Board Certified Adult Psychiatrist

2014 Exemplary Psychiatrist Award
National Alliance on Mental Illness
The national Exemplary Psychiatrist Awards honors publicly the exceptional contributions of selected psychiatrists who have gone the extra mile to improve the lives of people living with mental illness. Many psychiatrists have described this award as one of the most important honors that they can receive because it comes from the people who need their help the most- people whose lives are affected by mental illness.

- AWARD-WINNING MENTAL HEALTH ADVOCATE
- BOARD CERTIFIED PSYCHIATRIST / M.D.
- PROVEN COMMUNITY OUTREACH
- DEMONSTRATED CLINICAL SKILL
- PUBLIC HEALTH LEADERSHIP

While at LSU, Dr. Truehart was very active in many groups:

- Elected President of the Society of Physics Students
- Selected as member of Leadership LSU
- LSU Cosmic Ray Astrophysics Group Student Worker
- Phi Beta Kappa Honors
- Member of Sigma Pi Sigma

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Department of Physics & Astronomy

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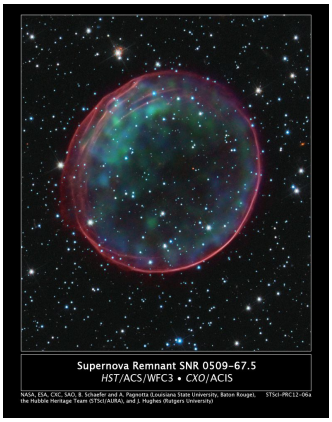
SATURDAY SCIENCE

We are all stardust

A public lecture by

Dr. Catherine Deibel



About the Topic

At the birth of our Universe, the Big Bang produced the initial abundances of hydrogen, helium, and lithium that are seen in our Galaxy today. All other elements, however, were synthesized in stellar environments through nuclear processes. Many of these heavy elements were produced in violent stellar explosions, such as classical novae, X-ray bursts, and supernovae, that are driven by nuclear reactions. This nucleosynthesis, which continues in our Galaxy, can be understood through the combination of stellar observations, computational physics, and experimental nuclear physics. I will discuss how we study the physics of microscopic nuclei to understand some of the largest, most violent explosions in the Galaxy, which create elements that make up the Solar System, the Earth and each of us.

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29 October 2016, 10-11:00 a.m.

Room 130 Nicholson Hall, LSU

LSUSaturdayScience@gmail.com

Join us for Physics & Astronomy ALUMNI TAILGATE

Saturday, October 22
3-6 p.m.
Nicholson Hall
LSU Quadrangle

Reconnect with fellow alumni and former professors and meet current students while enjoying jambalaya and LN_2 ice cream in the Quad.

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