

Weekly Calendar & News

Sept. 4-9, 2017

Departmental Colloquium

The Quantum Loom: Efficient Generation of Photonic Graph States

Hagai Eisenberg

Racah Institute of Physics - The Hebrew University of Jerusalem

Host: Jonathan Dowling

3:30 PM Thursday, September 7

109 Nicholson Hall

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

The generation of entanglement between more than two particles is a major challenge for all physical realizations. It is required for the realization of many quantum information protocols, including quantum computing. Single photons are one of the most promising realizations of quantum bits (qubits), as they are easily manipulated, preserve their coherence for long times, and information can be stored in their many different degrees of freedom. Up to date, up to ten photons have been entangled in a single state through their polarization degree of freedom. The main difficulties in increasing this number are the elaborated setups required and the low rates of state production. Dr. Eisenberg will present a novel and simple scheme that can in principle generate entanglement between any number of photons in a linear cluster state from a single fixed setup. This scheme combines photons from one source in a single path, but at different times, using an optical delay. It can be extended to create higher-dimensional cluster states, and even arbitrary graph states. Such states are useful for the one-way quantum computer scheme. Results from such a setup using heralded single photons will be presented. States of two and three entangled photons were measured, with good visibilities of their quantum interference.

LSU Physics & Astronomy in the News

- **LSU Media Center:** [LSU Health Physics graduate student replicates 1976 'Atomic Man' incident - Oak Ridge pilot research project takes a page from its storied history](#)
- **Science News Magazine:** "[Tabby's star is probably just dusty, and still not an alien megastructure - New analyses suggest the object might have an odd stellar cycle or be shrouded in tiny particles](#)"
- [The LSU College of Science Newsletter.](#)

New Publications

- **Kristina Launey published a book** "[Emergent Phenomena in Atomic Nuclei from Large-Scale Modeling: A Symmetry-Guided Perspective](#)"
- "[A Clarion Call for Large-Scale Collaborative Studies of Pediatric Proton Therapy](#)" by Gonzalez, Newhauser, W. and Walsh, L. etc.

Events

University will be closed Monday, Sept. 4, for the Labor Day holiday.



VISUAL COMMUNICATION WORKSHOP
Hill Memorial Library
Thursday, September 7th
10 a.m. - 2 p.m.

Learn to Create Science Visuals for Research Impact

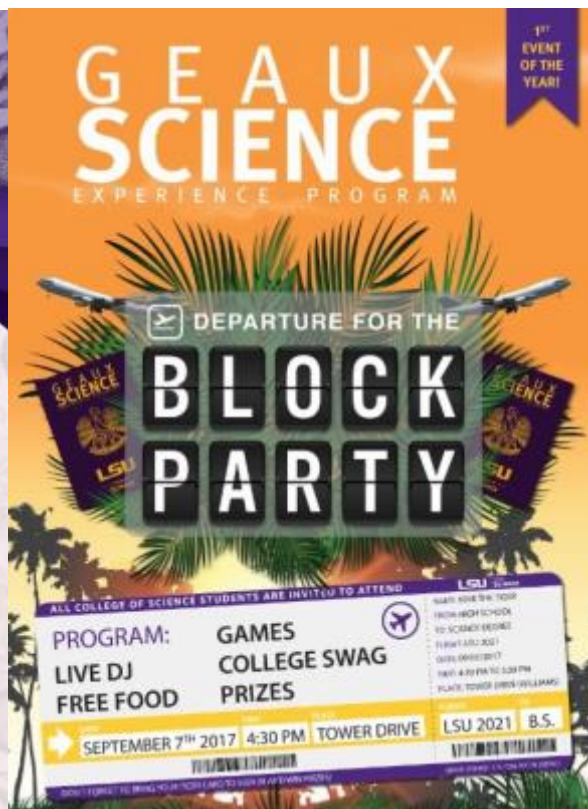
Ernie MASTROIANNI
Photo editor for *Discover* magazine since October 2002
He will be speaking about the importance of scientific photographs produced by scientists as well as image quality considerations.

Jen CHRISTIANSEN
Senior graphics editor at *Scientific American*, art directs and produces illustrated infographics and data visualizations
She will be speaking about developing scientific data visualizations for non-specialist audiences.

Kelly KRAUSE
Creative Director for the journal *Nature*
She will be offering advice regarding peer-reviewed research visuals.

Michael MRAK
Creative director for *Scientific American* and responsible for *ScientificIllustrations.com* and its newsfeed specials
He will be moderating our workshop as well as sharing his scientific illustration expertise.

LSU College of Science
science.lsu.edu



GEAUX SCIENCE
EXPERIENCE PROGRAM

1st EVENT OF THE YEAR!

DEPARTURE FOR THE
BLOCK PARTY

ALL COLLEGE OF SCIENCE STUDENTS ARE INVITED TO ATTEND

PROGRAM:
LIVE DJ
FREE FOOD

GAMES
COLLEGE SWAG
PRIZES

SEPT 7 10:00 AM - 2:00 PM
TOWER DRIVE

LSU 2021 B.S.