



PHYSICS & ASTRONOMY WEEKLY CALENDAR

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Louisiana State University
Baton Rouge, Louisiana 70803-4001

WEEKLY CALENDAR

March 31, 2008

Departmental Colloquium

“Imaging with Phase-Sensitive Light”

3:40 PM – Thursday, April 3, 2008

109 Nicholson Hall

Jeff Shapiro

Massachusetts Institute of Technology

Host – Jonathan Dowling

•Refreshments served at 3:15 PM in 201 Nicholson Hall•

Classical coherence theory for light-wave propagation in free space plus the shot-noise theory of photodetection have long provided the analytical tools necessary to understand the resolution and signal-to-noise behavior of conventional imaging systems. Light, however, is quantum mechanical, so it is important to note that rigorous quantum treatments of coherence theory and photodetection lead to predictions for the resolution and signal-to-noise behavior of conventional imaging systems that coincide with those found from classical coherence and shot noise. The key to this congruence is the restriction to light sources -- laser light, LED light, natural illumination -- whose quantum photodetection statistics are identical to those obtained from shot-noise theory. Because nonlinear optics can and has been used to generate light beams whose quantum photodetection statistics violate shot-noise theory, much attention has been paid to utilizing such non-classical behavior to advantage, and this has included applications in imaging. The imaging applications of non-classical light are not without controversy. In particular, some imaging experiments employing the entangled signal and idler photons obtained from spontaneous parametric downconversion have been replicated with classical incoherent light, raising doubts as to whether the former are truly quantum imagers. This talk will discuss a unified framework for understanding imaging with classical and quantum light beams that is built around the distinction between phase-insensitive and phase-sensitive coherences and their propagation through free space.

Materials Science and Engineering Seminar

“Negative Index MetaMaterials: Science and Applications”

3:40 pm – Wednesday, April 2, 2008

109 Nicholson Hall

Gennady Shvets

University of Texas, Austin

Host: Stephen Shipman-Mathematics Department

Congratulations To:

•Dana Browne, who will receive the 2008 Basic Sciences Tiger Athletic Foundation President’s Award at the University’s Distinguished Faculty Award Reception at Lod Cook Alumni Center May 6 at 4 PM.

•Edward Seidel who has been elected to the Board of Trustees of Internet2

<http://www.internet2.edu/elections/>.

Publication:

“Kondo-lattice screening in a d -wave superconductor,” Daniel E. Sheehy, and Jorg Schmalian, Physical Review B 77, 125129 (2008).