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# WEEKLY CALENDAR

## October 1-5, 2012

### DEPARTMENTAL COLLOQUIUM

**"Squeezed states of light - generation and applications"**

3:30 PM, October 4, 2012  
109 Nicholson Hall

**Eugeniy Mikhailov**  
*College of William and Mary*

**Host: Jonathan Dowling**

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

Optical measurements are intrinsically limited by the quantum shot noise, which is the manifestation of the optical equivalent of the Heisenberg uncertainty principle. I will talk about "squeezed" quantum states of light which allow performing measurements beyond standard quantum limit. I will introduce several methods for squeezed light generation and outline several applications of the squeezed light, such as optical measurements without photons and enhancement of the sensitivity for optical magnetometers and the gravitational wave antenna such as LIGO.

### *Quantum Krispy Kreme Seminar*

**"Quantum enhanced magnetometer and squeezed state of light tunable filter"**

**Eugeniy Mikhailov**  
*College of William and Mary*

3:30 PM, October 5, 2012  
435 Nicholson Hall

**Host: Jonathan Dowling**

At first, I will demonstrate a successful method of boosting sensitivity of an optical magnetometer with the polarization squeezed light, so our magnetometer achieves better than shot noise limited performance. In the second part of the talk I will talk about our progress to create a tunable narrowband filter for the squeezed light which could be useful for the LIGO squeezed enhance interferometer.

#### **PUBLICATIONS:**

1. "X-Ray and Optical Observations of A0535+26", A. Camero-Arranz, **G. Case, M.L.Cherry** et al., *Astrophysical Journal* **754**, 20 (2012).
2. "Three years of Fermi GBM Earth Occultation Monitoring: Observations of Hard X-ray/Soft Gamma-Ray Sources", C.A. Wilson-Hodge, **G.L. Case, M.L. Cherry, J. Rodi** et al., *Astrophysical Journal Supplement* **201**, 33 (2012).
3. "Self-Consistent Orbital Evolution of a Particle around a Schwarzschild Black Hole," **Peter Diener**, Ian Vega, Barry Wardell, and Steven Detweiler, *Physical Review Letters* **108**, 191102 (2012).