College of Science
Department of Physics & Astronomy

WEEKLY CALENDAR

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WEEKLY CALENDAR

September 8 - 12, 2014

DEPARTMENTAL COLLOQUIUM

"Giant Ionized Clouds and the History of Active Galactic Nuclei"

3:30 PM September 11, 2014
109 Nicholson Hall

Williams Keel
University of Alabama

Host: Arlo Landolt

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

Thanks to discoveries by Galaxy Zoo participants, we have identified a sample of active galactic nuclei whose host galaxies are surrounded by ionized clouds extended 10-45 kpc from the AGN. In many of these, the nucleus falls far short of producing enough radiation to ionize these clouds, suggesting that the AGN has faded by 5-100 times over the light-travel timescale 30,000-200,000 years (sometimes with e-folding timescales of only centuries). This behavior is preferentially seen in interacting or merging systems, and may be associated with dramatic changes in the accretion structure around the central black hole, or close binary black holes.

Frequent evidence of circum-nuclear outflow, and sometimes triggered star formation, indicate that we may be dealing with switching the mode of accretion energy rather than solely the accretion rate. Ongoing surveys provide evidence that this phenomenon may be common in AGN, with implications for their demographics as well as accretion history.

PUBLICATIONS:

1. "Pair of oscillators interacting with a common heat bath", G. W. Ford and **R. F. O'Connell**, Physical Review A 89, 054101 (2014).

2. "Hawking radiation from a spherical loop quantum gravity black hole", Rodolfo Gambini and **Jorge Pullin**, Classical and Quantum Gravity 31 (2014) 115003 (19pp).

3. "Numerical algorithm for the standard pairing problem based on the Heine–Stieltjes correspondence and the polynomial approach", Xin Guan, **Kristina D. Launey**, Mingxia Xie, Lina Bao, **Feng Pan**, **Jerry P. Draayer**, Computer Physics Communications 185 (2014) 2714 .

4. "A new kind of shift operators for infinite circular and spherical wells", Guo-Hua Sun, **K. D. Launey**, **T. Dytrych**, Shi-Hai Dong, and **J. P. Draayer**, Advances in Mathematical Physics 2014 (2014) 987376.