

## WEEKLY CALENDAR

March 24, 2008

### Departmental Colloquium

The Stellar Halo of the Andromeda Galaxy and Dwarf Galaxy Building Blocks"

3:40 PM – Thursday, March 27, 2008

109 Nicholson Hall

Puragra Guhathakurta

University of California Observatories/Lick Observatory

Host – John Clem/Arlo Landolt

*\*Refreshments served at 3:15 PM in 201 Nicholson Hall\**

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### Materials Science and Engineering Seminar

"New properties in old materials: the layered dichalcogenides"

3:40 pm – Wednesday, March 26, 2008

109 Nicholson Hall

Emilia Morosan

Rice University

Host: Ilya Vekhter

Transition metal dichalcogenides have long been known and explored. Due to their reduced dimensionality, such compounds sometimes play charge density wave (CDW) transitions or, upon doping with magnetic ions, often reveal dramatic changes of their physical properties. I will discuss the effects of transition metal intercalation on the properties of two layered chalcogenide materials,  $\text{TiSe}_2$  and  $\text{S}_2$ . Although  $\text{TiSe}_2$  is one of the first known CDW-bearing materials, the nature of its CDW transition remains controversial. Recently the interest in  $\text{TiSe}_2$  has been renewed by our discovery of the new superconducting state (SC) that emerges upon Cu doping.  $\text{Cu}_x\text{TiSe}_2$  provides the first example of a system in which controlled chemical doping can be used to study the competition between the CDW and SC. I will also discuss experiments on  $\text{Fe}_x\text{TaS}_2$  aimed at studying the sharp switching of the magnetization that recently observed in this compound for  $x = 1/4$ . For this particular Fe content,  $\text{Fe}_x\text{TaS}_2$  orders ferromagnetically below 160 K and plays very sharp hysteresis loops in the ordered state for  $H \parallel c$ . The corresponding magnetoresistance is negative, and qualitatively reproduces the features observed in the  $M(H)$  data, by showing a sharp drop around the critical field for moment reversal.

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### Congratulations To:

The Physics and Astronomy Students honored at the College of Basic Sciences Choppin Honors Convocation:

Benjamin Morris Award – **Nikolas Van Meter.**

Undergrad Research Award – **Stacey Bright and Brad Corso.**

Undergraduate Service Award – **Rachel Mannino.**

College Honors – **Shawn Wilkinson.**

**John O'Connell and Ravi Rau**, who were honored as "Outstanding Referees" by the American Physical Society at its recent March meeting. This recognition was awarded to referees who have been truly exceptional in their contributions to the physics community by their hard work and careful attention to the peer review process." The complete list of awardees can be found at <http://publish.aps.org/OutstandingReferees>.

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### Announcement

The 2008 LSU Benefits Fair

Friday, April 11, 2008

10:00 AM – 3:00 PM

LSU Union, Cotillion Ballroom

The University will be closed Friday, March 21, 2008 in observance of Good Friday. Classes resumes on Monday, March 24, 2008 at 7:30 am.

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### Publications:

"Late-time tails in the Kerr spacetime," Reinaldo J. Gleiser, Richard H. Price and Jorge Pullin, *Classical and Quantum Gravity*, 25 (2008) 072001 (6 pp).