



College of  
Science  
Department of Physics  
& Astronomy

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## Weekly Calendar

February 8 - 12, 2016

### Departmental Colloquium

#### "Computing the Heart of Matter"

3:30 PM Thursday, February 11, 2016

109 Nicholson Hall

Sonia Bacca

Canada's national laboratory for particle and nuclear physics/ TRIUMF

HOST: Ed Zganjar /Jerry Draayer

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

Atomic nuclei constitute the heart of matter. They drive the synthesis of chemical elements, serve as star fuel and as laboratories to test fundamental interactions and the Standard Model. Predictions of nuclear properties that start from forces among nucleons and their interactions with external probes as described by chiral effective field theory are arguably the doorway to a solid connection between observations and the underlying fundamental theory of quantum chromo-dynamics. Today, thanks to advances in many-body theory and high performance computing, we can calculate nuclear structure and reactions in a unified way for increasingly large systems and estimate theoretical uncertainties. Ultimately, we can constrain important properties of neutron stars and study reactions relevant in astrophysics which are difficult to measure. I will present recent highlights that portrait the role of ab-initio calculations to tackle contemporary issues like the proton-radius puzzle, the study of neutron halos and skins in nuclei, nuclear giant and pigmy resonances and other reactions relevant to astrophysics.

### Announcement:

Due to the Mardi Gras holiday the University will be closed on Tuesday, February 9, 2016. Students Mardi Gras holiday begins on Monday, February 8 at 7:30 AM. Classes resume on Wednesday, February 10, 2016 at 12:30 PM.

## LSU Physics & Astronomy in the News

- [Ivan Agullo](#) has received a five-year National Science Foundation Faculty Early Career Development, or CAREER, award to support his research on the early universe. The NSF CAREER award is one of the foundation's most prestigious grants awarded to promising junior faculty who effectively integrate research and education within the context of the mission of their organization. Agullo will receive \$400,000 for investigating the most extreme epochs in the evolution of the universe and obtaining avenues to observationally test the new ideas. [Read More](#)
- [Guang Jia](#) and medical physics doctoral candidate [Joseph Steiner](#) are revolutionizing prostate cancer screening by developing a device to increase accuracy. If successful, their device will produce more accurate CT scans of the prostate and improve prostate cancer diagnoses. [Read More](#)