LSU College of Science

LSU

Department of Physics & Astronomy

Weekly Calendar & News

Aug. 28- Sept. 1, 2017

Departmental Colloquium

Nanodevices: A Window to the Realm of Quantum Physics

Vaclav Janis

Institute of Physics and Charles University, Prague

Host: Juana Moreno

3:30 PM Thursday, August 31

109 Nicholson Hall

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

Quantum world is microscopic and we can deduce its laws mostly indirectly from measurements on bulk samples via macroscopic devices. Recent progress in experimental techniques allowed, however, for isolating nano-scale structures on which one can directly observe quantum-mechanical behavior of individual molecules or elementary particles. If nanodevices such as quantum dots or carbon nanotubes are attached to metallic and/or superconducting leads fundamental quantum phenomena can be demonstrated. In particular the Kondo effect, tunneling of the Cooper pairs and the interplay between electron correlations and superconductivity. We will present experimental realizations and theoretical description of Josephson junctions, clarify the behavior of the supercurrent through the dot and explain the role of the impurity bound states and Andreev reflections in the tunneling of the Cooper pairs through the dot. Finally, we discuss the emergence of a correlation-induced impurity phase transition at which the Josephson current changes its sign.

LSU Physics & Astronomy in the News

- **Physics Department Photo Gallery:** Solar Eclipse 2017 on the LSU parade ground
- **WAFB Chanel 9:** Dr. Chatzopoulos talks about the Eclipse & Einstein's Theory of General Relativity
- **The Daily Reveille:** LSU gathers for solar eclipse amid first day of classes
- **WWL Radio FM 105.3:** LSU students help broadcast first solar eclipse live stream from high-altitude balloon
- **Kearney Hub:** Tabetha Boyajian: "Science has barely scratched the surface of space exploration."
- **Daily Egyptian:** Louisiana students visit SIU, propel weather balloons 100,000 feet

Events

- **Landolt Astronomical Observatory Public Observing event has been cancelled due to potential inclement weather.**