

Weekly Calendar and News

October 3-8, 2016

LSU Physics & Astronomy in the News

- What happens when a star explodes? Meet new faculty member Manos Chatzopoulos: <http://lsuscienceblog.squarespace.com/blog/2016/9/20/what-happens-when-a-star-explodes-meet-new-faculty-member-manos-chatzopoulos>

- LSU faculty members are closing in on bringing their inventions to market with funds from the university's LIFT2 grant program. <https://www.businessreport.com/business/lsu-faculty-members-closing-bringing-inventions-market-funds-universitys-lift2-grant-program>

New Publications

- "Hubble Finds Planet Orbiting Pair of Stars" in collaboration with Tabettha Boyajian, et al. <http://hubblesite.org/newscenter/archive/releases/2016/32/full/>

Landolt Observatory Public Night

- Venus, Saturn, Mars, and Quarter-Moon
October 8, 2016 7:15 PM - 8:15 PM
Nicholson Hall- Landolt Observatory

Events

- LaCNS seminar: "Neutron Scattering for Investigating the Surface Aggregates Formed by Amphiphiles on Nanomaterials" by Prof. Bhuvnesh Bharti
October 3, 2016 3:00 PM at 1008B Digital Media Center
- LSU Fall Holiday: Fall Holiday begins, 7:30 a.m. Thursday, Oct. 6 – Friday, Oct. 7



Monday, October 3
3:00 PM
1008B Digital Media Center
Louisiana State University

Neutron scattering for investigating the surface aggregates formed by amphiphiles on nanomaterials

Nanoscale functional materials are of interest in many applications, ranging from catalysis, membrane processes, and chromatography to new areas such as microelectronics and medical diagnostics. Surfactants or related amphiphilic substances are involved in many of these fields, and understanding their surface-binding characteristics would enable the control and design of the assembly processes leading to the desired properties of the materials. An important characterization tool for addressing interfacial properties in aqueous soft matter systems is Small-Angle Neutron Scattering (SANS). To this end, we have applied SANS to investigate the adsorption of non-ionic surfactants on spherical silica nanoparticles and in the periodic cylindrical pores of SBA-15 material. Using SANS at silica contrast matching H_2O/D_2O solution, we find that the self-assemblies formed by the surfactants on the silica nanomaterials are strongly dependent on their surface-binding energy. This binding energy between surfactant and silica can be altered by co-adsorbing modifier molecules (here lysine), which further change the characteristics of the dispersions and the surface aggregates formed by the amphiphiles. I will also present our recent study on the formation of fatty acid liquid nanocapillary bridges between iron oxide nanoparticles, where I will highlight the major challenges in SANS experiments and modeling of these magnetic-fatty acid composite materials.

**SEMINAR
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2016**



Guest Speaker

**Dr.
Bhuvnesh
Bharti**

Professor of
Chemical
Engineering

Louisiana State
University

Free and open to the public



www.lsu.edu/physics/lacns

