LSU College of Science Department of Physics & Astronomy

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Weekly Calendar

December 8 - 12, 2014

Departmental Colloquium

"Discovery of the Chemical Signature of First-Generation Massive Stars"

3:30 PM December 11, 2014

109 Nicholson Hall

Timothy C. Beers
University of Notre Dame

HOST: Jeffery Blackmon

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

Numerical simulations of structure formation in the early Universe predict the formation of stars with masses from (1) several tens to (2) several hundred times the solar mass. The recently discovered carbon-enhanced metal-poor (CEMP) star with [Fe/H] < -7.1 and the distinctive light-element pattern of CEMP-no stars (carbon-enhanced stars that do not exhibit neutron-capture element over-abundances) can be associated with the first class of progenitors. However, no clear evidence of supernovae from super-massive stars has yet been found among the chemical compositions of Milky Way stars, the second class of expected progenitors. Until now.

After a discussion of the abundance patterns from CEMP-no stars, I report on an analysis of a newly discovered very metal-poor star, SDSS J001820.5-093939.2, which possesses elemental-abundance ratios that differ significantly from any previously known star. This star exhibits low [α-element/Fe] ratios and large contrasts between the abundances of odd and even element pairs, such as Sc/Ti and Co/Ni. Such features have been predicted by model calculations of the nucleosynthesis associated with a pair-instability supernova of a 130-260 solar-mass star, or a core-collapse supernova of an even more massive star. The result suggests that the mass distribution of first-generation stars might extend to 100 solar masses or larger.

Special Seminar

Louisiana Consortium for Neutron Scattering

"Neutron Scattering in Soft Matter Workshop"

Monday, December 8, 2014, 8:30-4:30pm
210 Choppin Hall, LSU

William Heller, Oak Ridge National Laboratory
Dvora Perahia, Clemson University
Boby Sumpter, Oak Ridge National Laboratory

Announcement

Commencement Day is Friday, December 19, 2014

College of Science
Location: Maddox Fieldhouse
Assemble: Maddox Fieldhouse no later than 11:45 a.m. Procession begins at 12:20 p.m.

NEUTRON SCATTERING IN SOFT MATTER
WORKSHOP

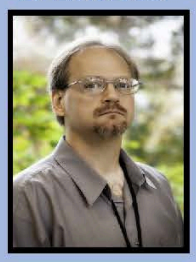
MODERATORS:
Donghui Zhang
LSU Assoc Prof of Chemistry
John DiTusa
LSU Prof of Physics

Dec 8, 2014

Free

8:30am-4:30pm
210 Choppin Hall, LSU
Please note LOCATION CHANGE

SPEAKERS:



WILLIAM HELLER

Instrument Scientist, EQ-SANS Diffractometer, Oak Ridge National Lab

Neutron Scattering for Soft Matter Science + Biology at Oak Ridge National Lab

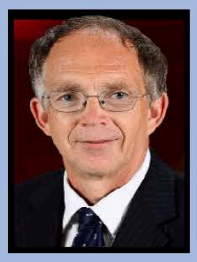
William Heller is a physicist and instrument scientist on the EQ-SANS instrument at the Spallation Neutron Source of ORNL. His primary research interests are in the structure of biomembranes and their interactions with proteins and peptides. He also develops methods and software for modeling small-angle scattering data.

DVORA PERAHIA

Professor of Physical Chemistry, Clemson University

A Glimpse Into Soft Assemblies from Drug Delivery to Actuators: Small Angle Neutron Scattering; The Role of Interfaces in Energy Production, Capture, and Storage; and *Non-Polarized Neutron Reflectometry*

The focus of Dr. Perahia's research is the study of polymers and complex fluids, including polyelectrolytes, semi-fluoro polymers that form liquid crystals, conducting polymers, rodlike highly conjugated polymers, and monodispersed di-block and tri-block co-polymers.



BOBBY SUMPTER

Director, Nanomaterials Theory Institute, Oak Ridge National Lab

Interfacial Dynamics in Polymer-Based Multicomponent Materials

Dr. Sumpter's research is directed primarily toward developing and applying modern computational and mathematical capabilities for the understanding and prediction of chemical and physical processes ranging from the molecular to the nanoscale to full-size engineering applications, using a multidisciplinary approach that integrates chemistry, physics, materials science, mechanical engineering, and biology.

LUNCH PROVIDED. RESERVATIONS REQUIRED.

E-mail larkin@lsu.edu by Dec 5 to reserve your spot

Louisiana Consortium for Neutron Scattering

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