



College of
Science
Department of Physics
& Astronomy

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Weekly Calendar

February 9 - 13, 2015

Special Colloquium

“Use of PET for proton therapy verification and hybrid nanoparticles”

3:30 PM **Tuesday**, February 10, 2015
119 Nicholson Hall

Jongmin Cho
UT MD Anderson Cancer Center
HOST: Wayne Newhauser

- Use of in-room PET for proton therapy verification - Determination of elemental tissue composition and tumor hypoxic region.
- Use of off-site PET for proton therapy verification - Development of proton activated fiducial markers for in-vivo proton therapy/range verification.
- Hybrid nanoparticles for radiation therapy and PET mediated molecular imaging.

Departmental Colloquium

“Quantum Fluctuations and Phase Transitions”

3:30 PM **Thursday**, February 12, 2015
119 Nicholson Hall

Nandini Trivedi
Ohio State University
HOST: Ilya Vekhter/Philip Adams

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

Quantum fluctuations leave their imprint in the cosmic microwave background to phenomena in materials. I will discuss the role of quantum fluctuations in driving phase transitions in materials and contrast them with the better understood thermally driven phase transitions. I will show how standard paradigms break down and novel phases of matter emerge in the context of superconductor-insulator phase transitions and discuss our predictions for experimental probes through local spectroscopies and dynamics. These concepts have overlaps with cold atoms and string theory that I will illustrate.

- [1] Bouadim, Loh, Randeria and Trivedi, “Single- and two-particle energy gaps across the disorder-driven superconductor-insulator transition”, Nature Physics 7, 884 (2011).
- [2] Swanson, Loh, Randeria and Trivedi, “Dynamical Conductivity across the Disorder-Tuned Superconductor-Insulator Transition”, Phys. Rev. X 4, 021007 (2014).

Special Seminar

Louisiana Consortium for Neutron Scattering

“Nano/micro Containers for Sustained Release of Protective Agents and Drugs: Tubes and Capsules”

Friday, February 13, 2015, 3:00 – 4:30pm

A-101 Life Sciences Annex, LSU

Yuri Lvov

Louisiana Tech University

Special Conference

20th Mardi Gras Conference

“Petascale Many Body Methods for Complex Correlated Systems”

Conference: February 12-14, 2015

Workshop: February 15-16, 2015

Digital Media Center Theater, Center for Computation & Technology (CCT), LSU

<https://goo.gl/maps/EWgGj>

Announcement:

The University will be closed on Tuesday, February 17, 2015 due to the Mardi Gras Holiday. There will be no classes on Monday, February 16, Tuesday, February 17, but classes will resume on Wednesday, February 18, 2015 at 12:30 pm.

Publications:

1. “Emergence of stringlike physics from Lorentz invariance in loop quantum gravity”, Rodolfo Gambini, **Jorge Pullin**, International Journal of Modern Physics D, Vol. 23, No. 12 (2014) 1442023 (6 pages).



20th Mardi Gras Conference

Petascale Many Body Methods for Complex Correlated Systems

Louisiana State University, Center for Computation & Technology, Baton Rouge, U.S.A.
Conference: February 12-14, 2015
Workshop: February 15-16, 2015

[Program \(PDF\)](#)

This conference takes place in the framework of a Partnership for International Research and Education (PIRE) funded by the U.S. National Science Foundation. The goal of this project is to develop a new international research and graduate education program leveraging cyberinfrastructure investment to study complex phenomena in correlated materials. The project represents a partnership between researchers at Louisiana State University (LSU), the University of North Dakota (UND), Ohio Supercomputer Center (OSC), and Oak Ridge National Laboratory in the U.S.; the University of Dortmund, the Max Planck Institute of Solid State Research, the University of Würzburg, and the University of Göttingen in Germany; and the Eidgenössische Technische Hochschule Zürich in Switzerland. This project receives support from NSF's Office of International Science and Engineering and the Division of Materials Research.

Topics include numerically exact descriptions of disordered and interacting electron systems, complex spin and orbital states of correlated materials, strongly correlated superconductors, including strong correlations in density functional theory, spin models, linked-cluster expansion approaches, matrix product state formulations, and analytic continuation, among others.

Organizers

- [Juana Moreno](#) (Chair), Department of Physics & Astronomy and CCT, Louisiana State University
- [Mark Jarrell](#), Department of Physics & Astronomy and CCT, Louisiana State University
- Bety Rodriguez-Milla, CCT, Louisiana State University

Where: Digital Media Center Theater, Center for Computation & Technology (CCT), Louisiana State University, Baton Rouge, LA: <https://goo.gl/maps/EWgGj>
Directions to campus: [Click here](#).

Registration: Registration is free but required. To register, please send an email to Carol Duran at cduran-at-lsu.edu with the following information: full name, affiliation, meals that you will attend (Thursday lunch, Friday lunch, Friday dinner, Sunday lunch, and/or Monday lunch), and any dietary restriction you may have.
Conference Dinner on Friday will be at Mike Anderson's Seafood restaurant and has a fee of \$25 per person. Trip to Mardi Gras parade in New Orleans has a fee of \$15.

Poster Session: If you want to present a poster at Thursday's poster session, please send the title, list of authors, and brief abstract of your poster, to be included in the Conference program, to Carol Duran along with your registration information.

Parking: Persons utilizing a vehicle will need a \$10 LSU parking permit (Monday-Friday; no permits are needed Saturday and Sunday). You can get a visitor permit at the Visitor Center between the hours of 7:30 a.m. and 4:30 p.m. The [visitor center](#) is located on the corner of Dalrymple Drive and Highland Road.
[Parking Lot X116](#) is the closest to the CCT. You can find more about parking at the LSU Parking and Transportation website: <https://sites01.lsu.edu/wp/parking/visitors>

Lodging: Participants will be staying at the [Cook Hotel](#) at LSU. We have reserved a block of rooms for the conference participants.
From the hotel to the CCT it is about a mile walk. Here is a map showing a walking path: <https://goo.gl/maps/0P5zu>

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[Abstracts Talks](#)
[Abstracts Posters](#)
[Photos](#)


LSU Bus (LSU Tiger Trails): Both Purple and Gold bus routes pass in front of the hotel and the CCT (they go in opposite directions): <https://sites01.lsu.edu/wp/tigertrails/times-of-operation/>
Find your bus: <http://lsu.transloc.com/>

Meals:

- Breakfast is provided by the hotel. There are a wide range of options to accommodate dietary needs.
- Lunch will be provided. Please inform us of any dietary needs.
- Some suggested places for dinner are:
 - The Chimes - American, Seafood, Southern/Soul 3357 Highland Road
 - Louie's Cafe - American, Breakfast/Brunch, Burgers 209 West State Street
 - Inga's Subs & Salads - Sandwiches/Subs 254 W Chimes St
 - Chinese Combo King - Chinese 166 W Chimes St
 - Koi Japanese Cuisine - Chinese, Japanese, Sushi 217 W State St
 - Reginelli's Pizzeria - Italian, Pizza, Sandwiches/Subs 124 W Chimes St
 - Roul Deli - Burgers, Sandwiches/Subs 3327 Highland Rd
 - Highland Coffees - Bagels, Coffee, Tea 3350 Highland Rd
 - Raising Cane's Chicken... - American, Fast Food, Southern/Soul 3313 Highland Rd
 - Bacio di Roma - Coffee, Desserts/Ice Cream, Italian 128 W. Chimes St.
 - Ali Baba - American, Burgers, Greek 228 West Chimes Street
 - The Pita Pit - Sandwiches/Subs, Smoothies, Vegetarian 3260 Highland Rd. Suite #4
 - Chipotle Mexican Grill - Mexican, Tex-Mex 101 W State Street
 - Five Guys Burgers & Fries - Burgers, Fast Food, Hot Dogs/Sausages 3332 Highland Rd
 - Serranos Salsa - Latin American, Mexican, Caribbean 3347 Highland Rd

Local Arrangements:

Carol Duran, LSU Physics & Astronomy,
Jennifer Fontenot, LSU CCT,
Karen Jones, LSU CCT.

Other information:

About LSU: <http://www.lsu.edu/visitors/images/thingstodo.pdf>
About Baton Rouge: <http://www.visitbatonrouge.com>
LSU campus map: <http://campusmap.lsu.edu/>
LSU visitor parking map: <https://sites01.lsu.edu/wp/parking/files/2011/02/Visitor-Center-Parking-Map.pdf>

Sponsors:

The 20th Mardi Gras conference is sponsored by the National Science Foundation award #OISE-0952300.



This conference is also made possible by the support of [LA-SiGMA](#) and the [Center for Computation & Technology](#).



For more information, please contact Carol Duran at cduran-at-lsu.edu.

The 20th Mardi Gras Conference is funded by [National Science Foundation](#) (NSF) award number #OISE-0952300 and the [Center for Computation & Technology](#) at [Louisiana State University](#)

Contact Information: cduran-at-lsu.edu



Joint colloquium with the LSU Dept. of Chemistry

Friday, February 13

3:30-4:30pm

A-101 Life Sciences Annex
Louisiana State University

Nano/micro Containers for Sustained Release of Protective Agents and Drugs: Tubes and Capsules

Nanotubes: Halloysite aluminosilicate nanotubes with a 15 nm lumen, 50 nm external diameter, and length of 800 ± 400 nm have been developed as an entrapment system for loading, storage, and controlled release of anticorrosion agents and biocides.

Fundamental research to enable the control of release rates from hours to days is being undertaken.

Nanocapsules: Layer-by-layer (LbL) self-assembly of molecularly organized films was developed with linear polyions, nanoparticles, dye and proteins. The formation of alternate outermost layers of the opposite charge at every adsorption cycle is the key point of the procedure.

SEMINAR
SERIES
2015



Guest Speaker

**YURI
LVOV**

Professor of
Chemistry

Tolbert Pipes Eminent
Endowed Chair on
Micro and
Nanosystems
Institute for
Micromanufacturing
Louisiana Tech
University

Nanotechnology specialist

Free and open to the public



www.physics.lsu.edu/lacns

