LSU College of Science Department of Physics & Astronomy

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Weekly Calendar

January 19 – 23, 2015

Departmental Colloquium

"Investigation of modern photon, electron and proton radiotherapy technologies for pediatric and breast cancer patients"

3:30 PM January 22, 2015

119 Nicholson Hall

Rui Zhang

Mary Bird Perkins Cancer Center & LSU

HOST: Wayne Newhauser

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

Improvements in pediatric and breast cancer patients' treatment outcomes have been clearly demonstrated, including longer mean survival time compared with previous treatment eras. Radiation therapy has long been recognized as an effective treatment method. However, radiogenic side effects, which include second cancers, cardiac toxicity, pulmonary toxicity, impaired growth and bone development etc, may reduce survivors' lifespan and quality of life. Some modern radiotherapy techniques have been developed to improve dose conformity and uniformity in the treatment target, but the radiation dose to healthy tissues surrounding the tumor is one of the major risk factors to cause side effects. So far, accurate dose data and quantitative evaluation of risks of side effects after these modern radiotherapies are still incomplete. This talk will first review some of these modern techniques, and then discuss our research, which is to compare the effectiveness of various radiotherapy modalities based on clinically realistic treatment plans, accurate dose reconstructions tools including Monte Carlo simulation, measurement and analytical model, advanced dose-risk models, and comprehensive uncertainty analysis.

Special Seminar

"Dark Universe"

Thursday, January 22, 2015, 7:00pm

LASM Pennington Planetarium

Dr. Carter Emmart
American Museum of Natural History

Announcement

Due to the Martin Luther King Jr. holiday the University will be closed on Monday, January 19, 2015. Classes resume on Tuesday, January 20, 2015 at 7:30 am.

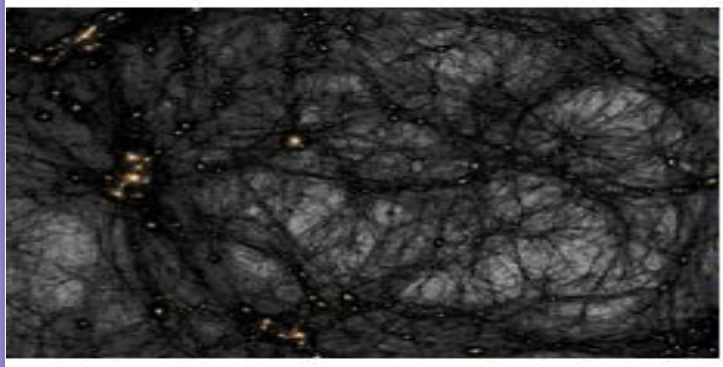
PUBLICATIONS:

1. "A new non-destructive readout by using photo-recovered surface potential contrast", Le Wang, Kui-juan Jin, Jun-xing Gu, Chao Ma, Xu He, **Jiandi Zhang**, Can Wang, Yu Feng, Qian Wan, Jin-an Shi, Lin Gu, Meng He, Hui-bin Lu & Guo-zhen Yang, Scientific Reports 4, Article number: 6980, 2014.

2. "Kantowski-Sachs spacetime in loop quantum cosmology: bounds on expansion and shear scalars and the viability of quantization prescriptions", **Anton Joe** & **Parampreet Singh**, Class. Quantum Grav.. 32 (2015) 015009 (21pp).

LASM

January | 2015

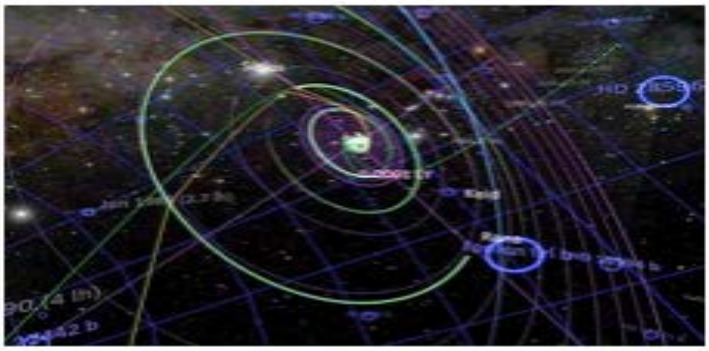


Producer's Talk: Dark Universe

Pennington Planetarium
January 22 | 7 PM

The universe is a curious place, more so than we ever imagined. As scientists unravel the complexities of the cosmos, key findings are revealing amazing new frontiers for explorations. Join us for an intriguing presentation by Dr. Carter Emmart, producer of our latest planetarium show *Dark Universe*. Dr. Emmart will take you on a virtual tour of the universe and provide a behind-the-scenes look at how the most accurate three-dimensional mapping data of the universe was used to create the show's beautiful visual effects. Following the talk, enjoy a special screening of *Dark Universe* and a reception. Regular planetarium admission rates apply.

About Dr. Carter Emmart



Dr. Emmart is the Director of Astrovisualization for production and education at the American Museum of Natural History's (AMNH) Rose Center for Earth and Space, coordinating scientists, programmers, and artists to produce scientifically accurate yet visually stunning and immersive space experiences in AMNH's Hayden Planetarium. He helped redefine how a planetarium theatre can present science to the public by using the planetarium as an immersive display that serves to surround its audiences in an accurately visualized 3D atlas of the universe. Carter explores the concept of scientific storytelling with immerive data visualization and shows how artistic processes can form out of the abstractions of science. Before working for AMNH, Dr. Emmart also did scientific visualization for NASA and the National Center for Atmospheric Research, and presented a TED Talk to demonstrate his 3D atlas of the universe.

Visit the Louisiana Art & Science Museum
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