WEEKLY CALENDAR

24 April 2006

Department of Physics and Astronomy
202 Nicholson Hall
Louisiana State University and A&M College
Baton Rouge, Louisiana 70803-4001
Tel: 225-578-2261 / Fax: 225-578-5855
http://www.phys.lsu.edu

Medical Physics Seminar

12:40PM / Wednesday, 26 April 2006 / Room 435 Nicholson

Lung Cancer, Respiration, and Radiation Therapy

Issac Rosen, PhD

LSU Adjunct Professor of Physics
Medical Physicist, Mary Bird Perkins Cancer Center

Dr. Rosen will give a brief overview of lung cancer, talk about its treatment with radiation, discuss how respiration affects the treatment, and introduce the new technologies being implemented.

Material Science & Engineering Seminar

3:40PM / Wednesday, 26 April 2006 / Room E-130 Howe-Russell

Host: Dr. Ilya Vekhter

Charles Reichhardt, PhD & Cynthia Olson, PhD

Los Alamos National Laboratory

Joint Material Science & Engineering and General Seminar

3:40PM / Thursday, 27 April 2006 / Room 109 Nicholson

[Refreshments served at 3:15PM in Room 229 Nicholson]

Host: Dr. John DiTusa

Bose-Einstein Condensation of Excitons in Semiconductor Bilayers

Alan MacDonald, PhD
University of Texas - Austin

Special General Seminar

12:40PM / Friday, 28 April 2006 / Room 109 Nicholson

[Refreshments served at 12:15PM in Room 229 Nicholson]

Host: Dr. Kenneth Hogstrom

Habib Zaidi, PhD

Dept. Of Radiology & Medical Informatics
Geneva University Hospital, Switzerland

Emerging Innovations in PET Instrumentation and Quantitative Image Analysis

This seminar reflects the tremendous increase in interest in standalone (PET) and dual-modality (PET/CT) imaging as both clinical and research molecular imaging modalities in the past decade. It offers an overview of PET imaging physics and instrumentation with special emphasis on recent progress made in instrumentation design and quantitative image analysis procedures as well as integration of multimodality imaging in patient diagnosis and therapy planning. Advances in PET imaging-guided diagnosis and therapy rely on two aspects: (i) improvements in instrumentation to enhance imaging performance parameters (e.g. spatial resolution and sensitivity), and development of components to correct for physical degrading factors (e.g. transmission scanning-based attenuation correction); and (ii) improvements in algorithmic design to attain better image quality and achieve more accurate and automated quantification of physiological parameters of interest in clinical and research settings.

The seminar offers an overview of the entire range of PET imaging from basic principles to various steps required for obtaining quantitatively accurate data from PET and combined PET/CT systems including data collection methods and algorithms used to correct them and image reconstruction algorithms as well as image processing and analysis techniques and their clinical and research applications. The specific role of Monte Carlo simulations for the development and assessment of quantitative imaging methodologies will be highlighted and illustrated with examples from research carried out at the PET Instrumentation & Neuroimaging Laboratory of Geneva University Hospital.