

Nanoscience for Energy Research and Development Symposium 2008 (NERDS-08)

South Dakota School of Mines and Technology

SYNOPSIS: Energy production, distribution and storage will be one of the foremost challenges of the 21st century. Research and development of alternative energy technologies faces broad challenges, solutions will require nanoscale knowledge of the relevant systems. This symposium will bring together a focused group with common interests in energy-related nanoscience and engineering, with the intention of promoting and furthering the exchange of scientific ideas and expertise in energy-related research.

AGENDA Saturday, April 12:

8:00AM Breakfast

8:30AM Welcome. Dr. Duane Hrcir, Dean of Science and Letters, SDSM&T

8:40AM opening remarks Steve Smith (Nano Energy Research and Development Overview)

Morning session, BIO-ENERGY (advanced imaging):

9:00AM Shi-you Ding *NREL* (Nanoscale Imaging Plant Cell Wall Biomass Using Non-Destructive Microscopy and Spectroscopy)

9:30AM Jeff Squier *CSM* (Simultaneous Multiphoton Imaging)

10:00AM Break

10:30AM Yining Zeng *NREL* (Probing HIV-1 NC-Induced Nucleic Acid Structural Rearrangement by Single-Molecule Fluorescence Spectroscopy)

11:00AM Sy-Hwang Liou *UNL* (Fabrication of advanced cantilevers for high sensitivity characterization)

11:30AM Peng Zhang *NMT* (Synthesis, characterization and applications of photon upconverting nanoparticles)

12:00 PM Lunch

Afternoon session, SOLAR ENERGY (electronic materials):

1:00PM R. Ahrenkiel, *CSM* (Photoconductive Lifetimes of Carbon Nanotube Films by RCPCD)

1:30PM S.P. Ahrenkiel, *SDSM&T* (Microstructure of Photovoltaic Thin Films: Recrystallization of a-Si:H and Heteroepitaxy of Lattice-Mismatched III-V Alloy)

2:00PM Stan May, *USD* (A New Generation of Luminescent Solar Concentrators for Photovoltaic Applications based on Metal-Surface Enhancement)

2:30PM Break

3:00PM Rajesh Shende *SDSM&T* (Sol-Gel Mesoporous TiO₂ for Dye-Sensitized Solar Cells)

3:30PM Zhengtao Zhu *SDSM&T* (Optical and Electronic Properties of Conjugated Polymer/Nanoparticle Hybrid Materials)

4:00PM Robert Corey *SDSM&T* (Remarkable Hydrogen Mobility in Activated MgH₂; Preliminary NMR Evidence of a Nanoscale Size Effect)

4:30PM Andre Petukhov *SDSM&T* (Tailoring Magnetism in Semiconductor Nanostructures)

5:00PM Round table discussion of EFRC's.

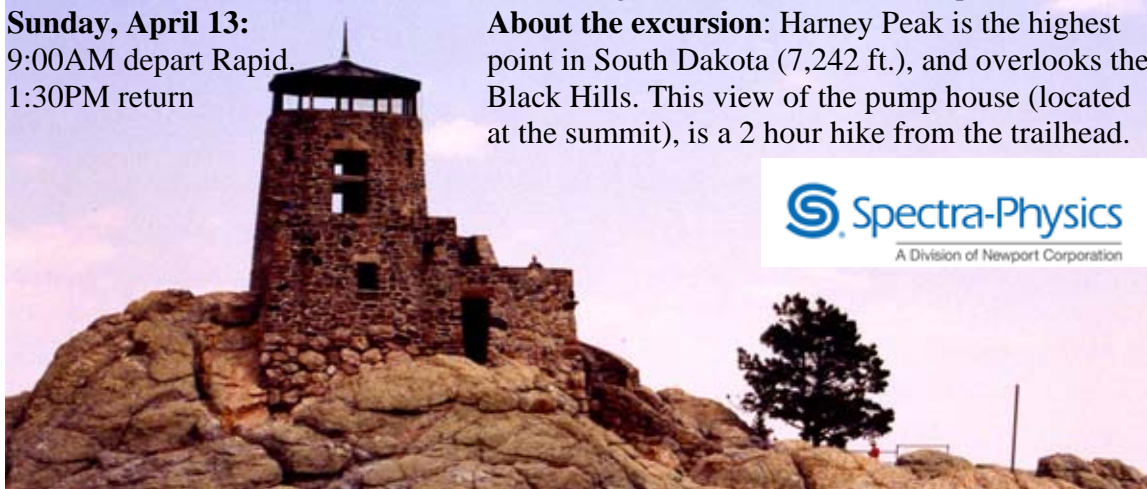
5:30 PM Dinner (Firehouse Dinner Theater featuring Moliere's 'The Doctor in Spite of Himself')

Sunday, April 13:

9:00AM depart Rapid.

1:30PM return

About the excursion: Harney Peak is the highest point in South Dakota (7,242 ft.), and overlooks the Black Hills. This view of the pump house (located at the summit), is a 2 hour hike from the trailhead.



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