Lawrence Berkeley National Laboratory

2009 summer lecture series

NOON
TUESDAYS
BUILDING 66
AUDITORIUM

JULY 7

Bob Schoenlein
Ultrafast Science: Using Lasers and X-rays to Reveal the Motion of Atoms and Electrons

The ultrafast motion of atoms and electrons lies at the heart of chemical reactions, advanced materials with exotic properties, and biological processes such as the first event in vision. Bob Schoenlein, Deputy Director for Science at the Advanced Light Source, will discuss how such processes are revealed by using laser pulses spanning a millionth of a billionth of a second, and how a new generation of light sources will bring the penetrating power of x-rays to the world of ultrafast science.

JULY 21

Curtis Oldenburg
Geologic Carbon Sequestration: Mitigating Climate Change by Injecting CO_2 Underground

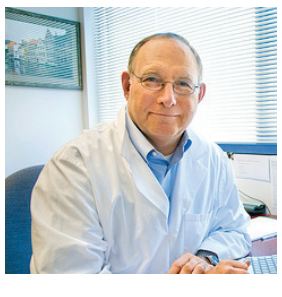
Climate change provides strong motivation to reduce CO_2 emissions from the burning of fossil fuels. Carbon dioxide capture and storage involves the capture, compression, and transport of CO_2 to geologically favorable areas, where it's injected into porous rock more than one kilometer underground for permanent storage. Oldenburg, who heads Berkeley Lab's Geologic Carbon Sequestration Program, will focus on the challenges, opportunities, and research needs of this innovative technology.

JULY 28

Alexie Leauthaud and Reiko Nakajima
What is Gravitational Lensing?

Gravitational lensing is explained by Einstein's general theory of relativity: galaxies and clusters of galaxies, which are very massive objects, act on spacetime by causing it to become curved. Alexie Leauthaud and Reiko Nakajima, astrophysicists with the Berkeley Center for Cosmological Physics, will discuss how scientists use gravitational lensing to investigate the nature of dark energy and dark matter in the universe.

AUGUST 4



Joe Gray
Genome Science and Personalized Cancer Treatment

Results from the Human Genome Project are enabling scientists to understand how individual cancers form and progress. This information, when combined with newly developed drugs, can optimize the treatment of individual cancers. Joe Gray, director of Berkeley Lab's Life Sciences Division and Associate Laboratory Director for Life and Environmental Sciences, will focus on this approach, its promise, and its current roadblocks — particularly with regard to breast cancer.

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