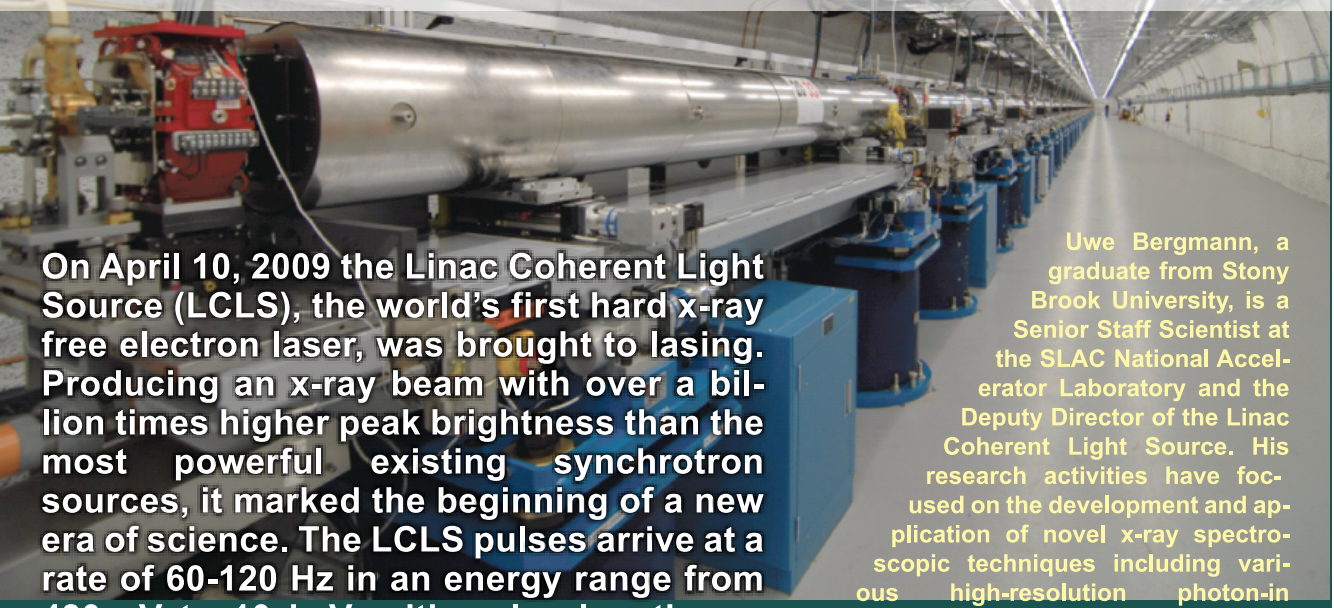
Argonne NATIONAL LABORATORY

Uwe Bergmann

"LCLS - The X-ray Laser Has Turned On"



On April 10, 2009 the Linac Coherent Light Source (LCLS), the world's first hard x-ray free electron laser, was brought to lasing. Producing an x-ray beam with over a billion times higher peak brightness than the most powerful existing synchrotron sources, it marked the beginning of a new era of science. The LCLS pulses arrive at a rate of 60-120 Hz in an energy range from 480 eV to 10 keV, with pulse lengths as short as a few fs to about 300 fs. Since October 2009, users have been performing experiments at the LCLS, and currently three of the six planned instruments are available. Although we stand only at the beginning of LCLS science, there is no doubt about the strong sense of early excitement. We will describe the LCLS and its unique new capabilities, followed by some examples of the first experiments, and finish with an outlook of future plans in the short as well as the long term.

Uwe Bergmann, a graduate from Stony Brook University, is a Senior Staff Scientist at the SLAC National Accelerator Laboratory and the Deputy Director of the Linac Coherent Light Source. His research activities have focused on the development and application of novel x-ray spectroscopic techniques including various high-resolution photon-in photon-out spectroscopies and x-ray fluorescence imaging. His scientific interests include studies of the structure of water and aqueous solution, active centers in metalloproteins in particular the photosynthetic splitting of water, hydrocarbons, and fossil fuels and imaging of ancient documents and fossils. Bergmann did his graduate research at the National Synchrotron Light Source and subsequently worked at the European Synchrotron Radiation Facility, the Lawrence Berkeley National Laboratory, the Stanford Synchrotron Radiation Lightsource, and now the LCLS. He has also been a long time user of the Advanced Photon Source.

Wednesday, November 3, 2010 | 3:00 p.m.

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