The Beams and Applications Seminar Series

High Precision Timing and Synchronization for Future Light Sources

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LBNL

Bldg. 401, Rm. B2100
Wednesday, November 7, 10:00 am

(please note special day and time)

Host: Kathy Harkay, ASD

The next generation of light sources (FELs and ERLs) require exquisite coordination among the accelerator and laser systems in order to achieve the high beam quality. This is particularly true for FELs producing intense x-ray pulses with durations of about 100 femtoseconds or less. To use these x-rays in pump-probe experiments, it is important to synchronize optical lasers to the x-ray pulses to less than 100 fsec or even less in the case of seeded FELs. Furthermore, to produce the high quality beams needed, it is necessary to synchronize the accelerating sections to a few hundred femtoseconds. I will describe the developments in Berkeley to achieve this level of synchronization. Our approach uses optically stabilized fiber links to transmit timing information. We have succeeded in synchronizing independent links of several kilometers to a few tens of femtoseconds.

For more information visit

http://aps.anl.gov/News/Meetings/Beams_and_Applications_Seminars/

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