

Insertion Device Motion Control at ALS

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Invité par Dominique CORRUBLE

Lundi 29 septembre à 14h00

Grand Amphi SOLEIL

Séminaires

The Advanced Light Source is a synchrotron based electron storage ring facility which has been producing high brightness, high intensity X-ray beams for more than 20 years at the Lawrence Berkeley National Laboratory in Berkeley, California. The storage ring has 12 sectors each consisting of one straight section and 3 bend magnets. Nine of the straight sections are suitable for hosting insertion devices. The original installation included a set of full length (i.e. occupying a full straight section) undulators, the undulator gap being controlled by a stepper motor using for feedback a rotary encoder driven by a chain off one of the drive screws. Later, some of the original undulators were replaced by pairs of (half length) elliptically polarizing undulators (EPUs) using brushless servomotors and Delta Tau PMAC 1 for control. This presentation will discuss the upgrade of the remaining original undulators and the EPUs to use high precision encoders and up-to-date servo motors controlled by the Delta Tau PowerPMAC motion controller (as well as several more EPUs added more recently).

The presentation will discuss advantages of running the EPICS state sequencer program on the Linux computer within which the motor controller is embedded and how this computer may be further exploited to provide useful diagnostics. Techniques to manage several technical issues that have arisen will be presented, technical issues such as :

- backlash
- large variable magnetic forces
- static friction
- multiple encoders
- cascaded servo loops
- coordinated motions



Ce séminaire sera suivi d'une pause-café



Formalités d'entrée : accès libre dans l'amphi du Pavillon d'Accueil. Si la manifestation a lieu dans le Grand Amphi SOLEIL du Bâtiment Central, merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès).

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