Online Monitoring during girder re-alignment at SLS (Swiss Light Source) accelerator

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SLS: *Swiss Light Source*

Accelerator SLS at the Paul Scherrer Institut (PSI), Switzerland

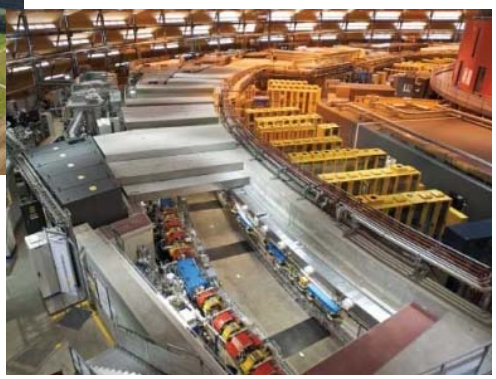
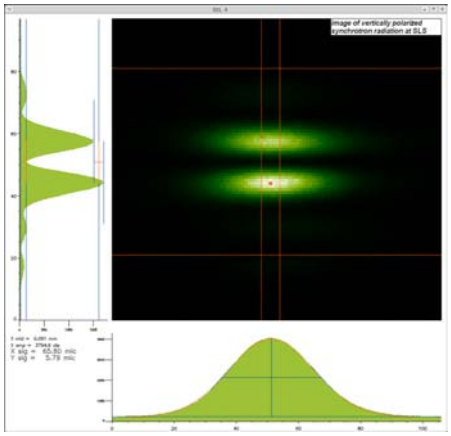
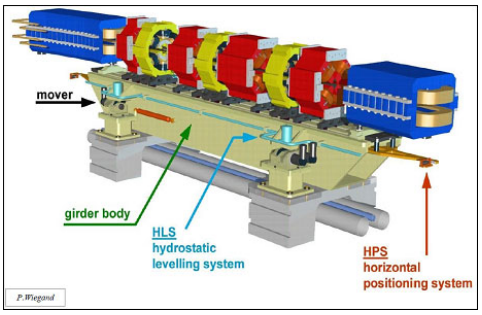


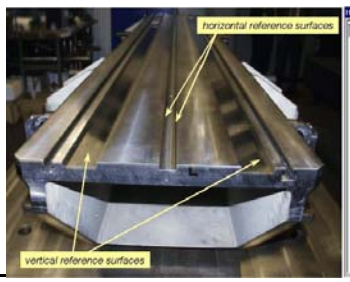
Image of synchrotron light

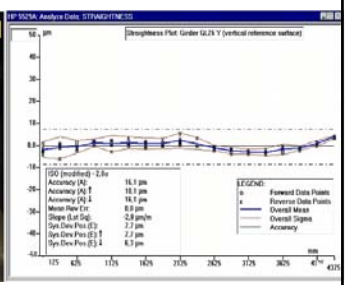


Vertically polarized synchrotron radiation at SLS

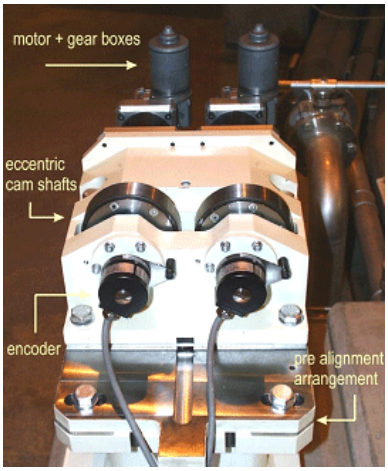
Girder Concept

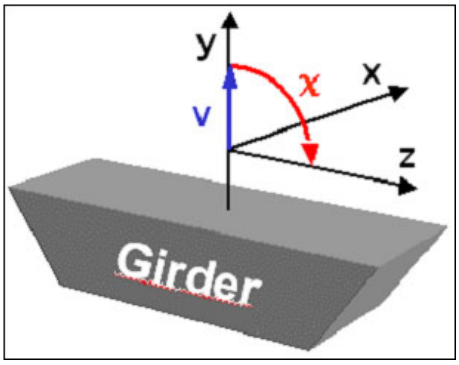






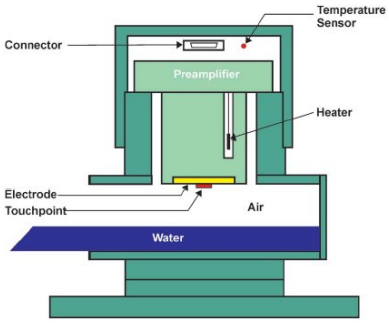
Girder Motion Control





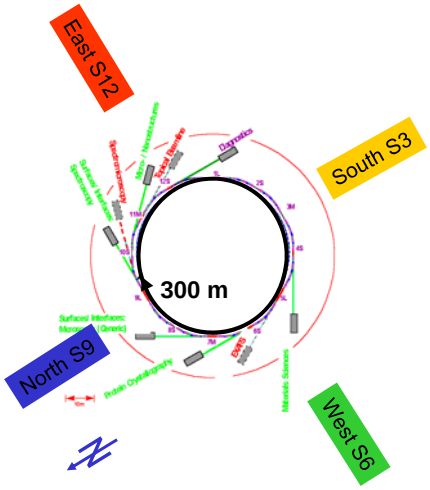
HLS: *Hydrostatic Levelling System at SLS*

Collaboration of EMP, geomETH, Winterthur, Stanford Linear Accelerator Center, Paul Scherrer Institute

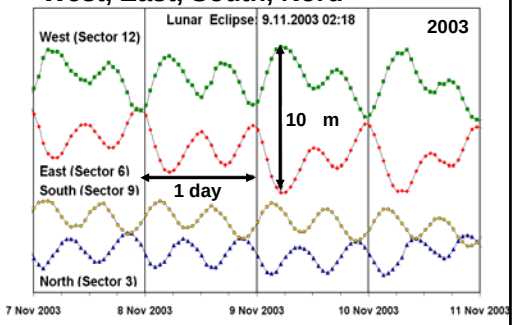


Levelsensor: Installation on girder

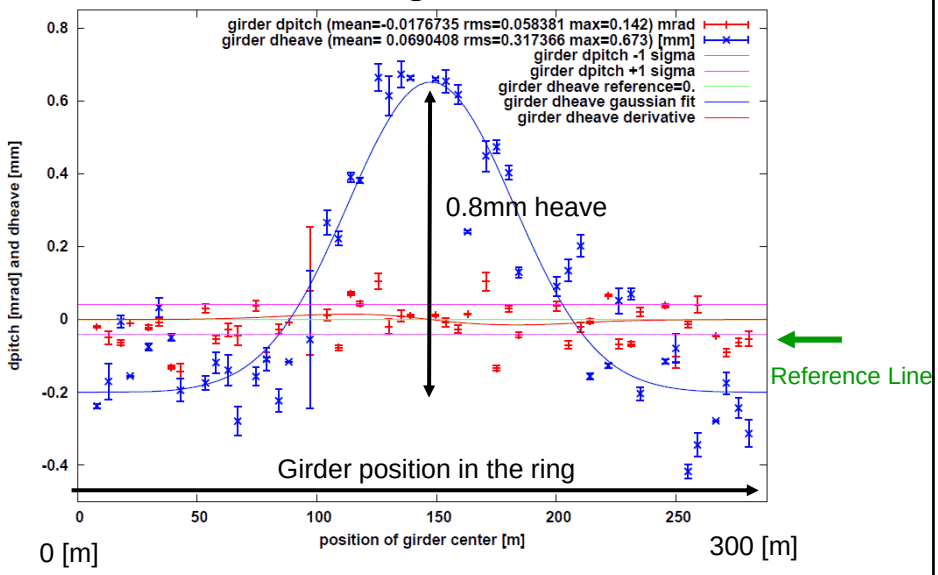
Sector Average and Single Signals



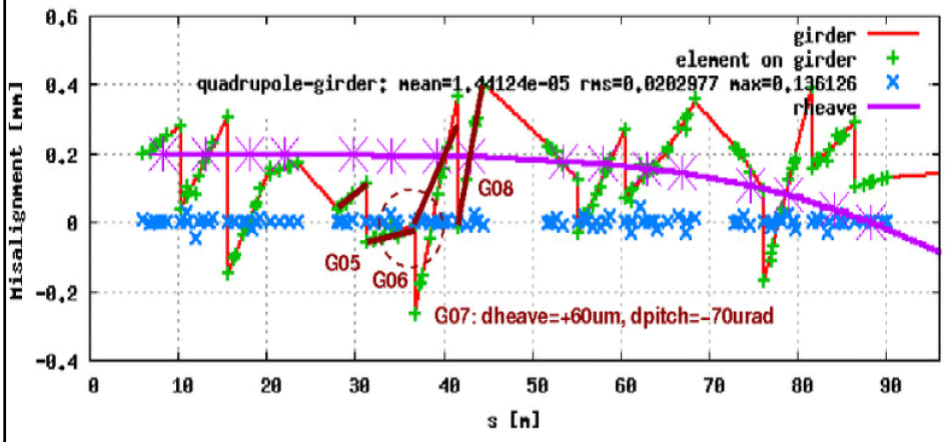
Average values of sectors West, East, South, Nord



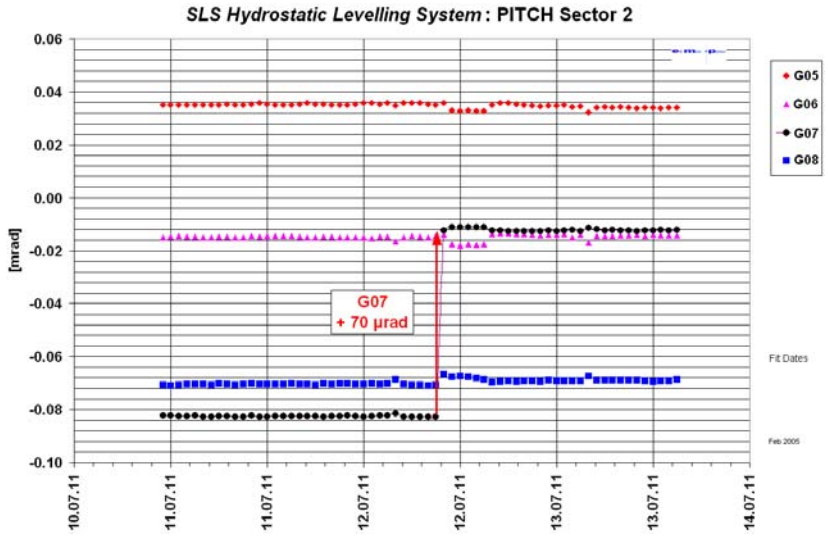
Pitch and Heave Changes



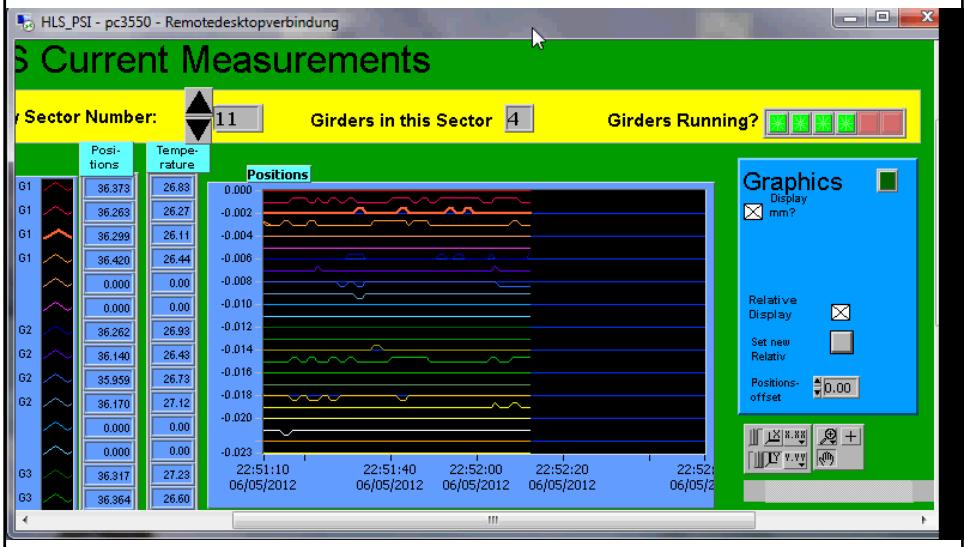
Correction of Misalignements



HLS Feedback Pitch recorded in Sector 2

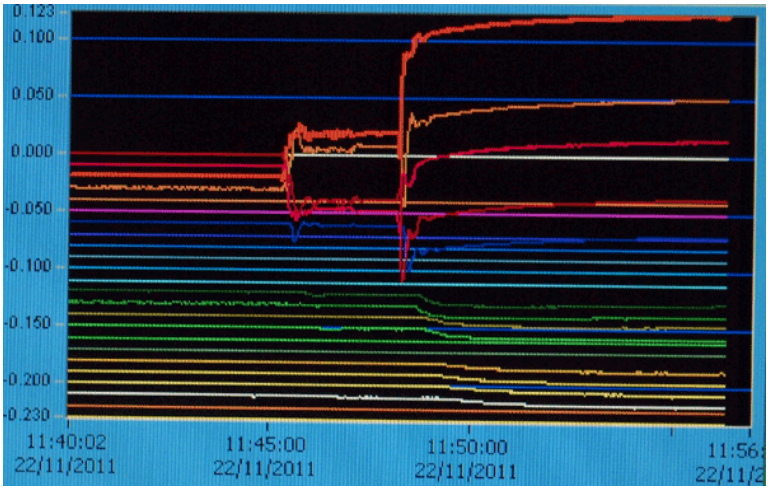


Normal Online Record of HLS Signals



Record during Alignment

Fast response:



Summary and Outlook

- HLS is a suitable tool for **longterm** monitoring giving a perfect deformation history.
- The HLS is a suitable tool for **„real-time“** monitoring for girder alignment control.
- Also „**dynamic“** measurements are possible. In that case a model of the water flow according to the desired precicion is needed.

Thank you for listening and good-bye!