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Controlling of a nano imaging test device

Tuesday 16 September 2025 17:00 (1 hour)

In preparation for the accelerator upgrade "PETRA IV" at DESY, a nano imaging test device for the experiment end stations, called SPIDER, is under development. Aside to new concepts for the ultra stable mechanical design, the controlling of the mechatronical parts and sensors as active feedback plays another important role. The device is driven by different motor types like steppers, servos and piezos. For synchronization purposes most of the controllers are connected via a real-time bus which is led by one master real-time controller (plc). All axes are equipped with nanometer resolving encoders and the sample holder is monitored by a laser interferometer. With these sensors as feedback, the master plc can not only monitor all axes but also provides capabilities for online correction of mechanical imperfections and active damping of vibrations. The poster will show the control structure together with measurement results from the prototype in the lab.

Footnotes

Funding Agency

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