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Electronic design in neutron instrumentation

Tuesday, 15 May 2018 14:00 (30 minutes)

The neutron scattering instruments of the Jülich Centre for Neutron Science JCNS with all substations are continuously developed and improved. A key role is taken by motion control solutions that are tuned to specific requirements of science or developed as a standard for cross-instrumental tasks. Alongside with the mechanics, the electric motor with its different characteristics as an electromechanical converter and with the support of current control technologies is a central element for the automation of a neutron instrument.
The development of new hard- and software products is extremely fast with short innovation cycles.

The talk 'Electronic Design'shows the current tools to plan and implement JCNS-automation solutions with the focus on drive technologies and feedback systems with the connection to industrial components. In addition to the planning tools, an overview of the used motors with various encoder-systems is given as well the presentation of the implemented examples of motion control solutions, currently the vacuum control-system of the time-of-flight instrument TOPAS.

Feasibility studies for future neutron scattering instruments are also shown and a very short outlook on trends for new automation products is given.

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