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Replacing MultiView and LabView with NICOS

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MGML (Materials Growth & Measurement Laboratory) in Prague is an open research infrastructure providing access to the instrument suite dedicated to measurements of a rich spectrum of physical properties of materials in a wide range of temperatures, magnetic and electrical fields, and hydrostatic uniaxial pressures. Together there are 18 furnaces, 3 diffractometers, 5 room temperature instruments and 8 cryostats.

NICOS software [1] is used on every instrument as an experimental logbook, providing user authentication against user office system and uploading measured data after experiment to central file storage. All cryostats can be controlled with NICOS: Cryogenics 20T magnet, Leiden Cryogenics 9T magnet with dilution insert and Oxford Instruments Triton cryofree dilution refrigerator with 4T vector magnet. All Quantum Design instruments (3x PPMS, 2x MPMS) can be also controlled with NICOS via SECoP [2].

We will present a way how to use NICOS for resistivity measurement (Keithley K6221/K6220 + K2182A, DC using Delta method, up to few G Ω or Lock-In Amplifier SR830(+K6221), SR865, up to 4MHz and also Keithley K6517B, DC, up to and beyond T Ω). Special setup also exists for measurement of thermal conductivity and Seebeck coefficients.

Our users are happy to use instrument friendly software and in addition they are used to NICOS when they will come to neutron facility for the first time.

[1] <https://nicos-controls.org/>

[2] <https://github.com/SampleEnvironment/SECoP>

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