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## **High-throughput powder diffractometer ERWIN – design, capabilities and opportunities**

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Powder diffraction at neutron sources stands in the forefront of materials research and powder diffractometers are standard working horses at large scale facilities serving a large part of neutron community with data and producing the vast of scientific output. Many years ago the analysis of instrumental suite at FRM II reactor source clearly identified a demand for high-throughput monochromatic diffraction instrument, addressing a large section of reciprocal space in gapless fashion and adopting sufficient dynamic range with  $\mu\text{s}$  time-resolution, suited for both rapid data collection and studies of small sample volumes in the range of  $\text{mm}^3$ , allowing for a variety of different sample environments and having a capability to eliminate their contributions.

In the current contribution a final concept of medium-resolution neutron powder diffraction option ERWIN at beam port SR8b at FRM II will presented. By its design the instrument ERWIN – “Energy research with neutrons” is especially adapted for structural characterization of energy materials and electrochemical storage systems by applying simultaneous bulk/spatially resolved neutron powder diffraction. Besides this a number of useful experimental options and features enabling studies of small samples using an adapted radial collimator, rapid parametric measurements as a function of external parameters, time-resolved studies etc will be discussed.

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