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ErwiN in the making - a Fast Neutron Powder Diffraction Option

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The need for rapid data collection and studies of small sample volumes in the range of mm3 are the main driving force for the concept of a high-throughput monochromatic diffraction instrument at the Heinz Maier-Leibnitz Zentrum (MLZ). A large section of reciprocal space will be addressed with sufficient dynamic range and µs time-resolution while allowing for a variety of complementary sample environments. The medium-resolution neutron powder diffraction (NPD) option for "Energy research with Neutrons"(ErwiN) at the research reactor Munich is foreseen to meet future demand. ErwiN will especially be suited for addressing structural studies and its uniformity of energy-related systems and materials by using simultaneous bulk/spatially resolved NPD. A set of useful experimental options will be implemented enabling time-resolved studies, rapid parametric measurements as a function of external parameters or studies of small samples using an adapted radial collimator. The proposed powder diffraction option ErwiN will bridge the gap in functionality between the high-resolution powder diffractometer SPODI and the time-of-flight diffractometers POWTEX and SAPHIR.

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