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The new Neutron Depth Profiling instrument at the Prompt Gamma Activation Analysis facility of MLZ

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Neutron depth profiling (NDP) uses neutron induced particle emissions to probe, for example, Lithium distributions within the first few micrometers of a sample, yielding valuable insights in fields like battery development. The Prompt Gamma Activation Analysis (PGAA) facility at the Heinz Maier-Leibnitz Zentrum (MLZ) in Garching offers unique opportunities for high-sensitivity NDP by provideing neutron fluxes as high as 4×10E10 n / s cm² with the size of about 5x5 mm². In the frame of the development of the new NDP instrument, the beam properties, background and resolution limits were investigated thoroughly. The first measurements on suitable samples have been performed. The new NDP instrument together with its installation and the first experiments will be presented with an emphasis on quality assurance. An overview of the future developments in multi-dimensional NDP and NDP combined with PGAA will also be presented.

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