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Pulsed Positron Beams for Materials Sciences at NEPOMUC

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Pulsed low-energy positron beams of variable energy are powerful
tools for defect profiling in materials with positron annihilation lifetime spectroscopy (PALS). The UniBwM operates two pulsed positron beams at NEPOMUC: The Pulsed Low-Energy Positron System (PLEPS) for depth-resolved (1D-)defect profiling and the Scanning Positron Microscope (SPM), which in addition offers lateral micrometer resolution, thus enabling for the first time to measure 3D-defect distributions.
At first, we describe how PLEPS and SPM work in their present versions. To illustrate the unique features and possibilities our pulsed beams offer we show selected examples of PLEPS and SPM applications to condensed matter problems. Finally, we will give an outlook of the future developments of PLEPS and SPM at NEPOMUC.

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