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## **New Positron Beam Instruments at the Reactor Based Positron Source NEPOMUC**

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The low-energy positron beam at the reactor based positron source NEPOMUC is used for various experiments in applied science and in fundamental research on leptonic systems. Within this talk current and new developments will be presented: The new scanning microbeam for Doppler broadening spectroscopy enables defect imaging with high spatial resolution. A positron diffractometer is currently connected to the positron beamline allowing total reflection high energy positron diffraction (TRHEPD). In addition, the angular correlation of annihilation radiation (ACAR) spectrometer is planned to be transferred to NEPOMUC in order to enable depth dependent studies of the electronic structure. In order to allow experiments for the investigation of pair plasmas a magnetic dipole trap has been developed enabling the simultaneous confinement of both electrons and positrons. In recent experiments a positron injection efficiency of 100% and positron confinement times of more than one second have been achieved. Within the same project we currently develop a device for the creation of ultra dense positron pulses.