VA 3 Positron beam facility

Time: Monday 14:00–14:40 Room: HSZ 101

Invited Talk VA 3.1 Mon 14:00 HSZ 101

The Positron Beam Facility NEPOMUC and Positron Experiments at FRM-II — •Christoph Hugenschmidt[1,2], Thomas Brunner[2], Stefan Legl[2], Jakob Mayer[2], Christian Piochacz[1], Klaus Schreckenbach[1,2], and Martin Stadlbauer[2] — [1]ZWE FRM II, Technische Universität München, Lichtenbergstraße 1, 85747 Garching — [2]E21, Physik Department, Technische Universität München, James-Franck-Straße, 85747 Garching

The in-pile positron source NEPOMUC (NEutron induced POsitron source MUniCh) of the Munich research reactor FRM-II delivers a low-energy positron beam of highest intensity. The primary kinetic energy of the positrons can be varied in the range between 15 eV and 1 keV. The maximum yield of positrons was up to $5{\cdot}10^8$ moderated positrons per second. New instruments for beam diagnostics have been implemented for the determination of the positron intensity and for positron beam profile measurements.

In the present arrangement of NEPOMUCs instrumentation the mono-energetic positron beam is magnetically guided to different experiments: a coincident Doppler broadening spectrometer (CDBS) and a PAES (positron induced Auger electron spectroscopy) analysis chamber. At present an apparatus for the production of the negatively charged Positronium ion is connected to the beam line in a collaboration between TUM and the Max-Planck Institute for nuclear physics. An overview of the current status of the positron beam facility is given and first experimental results are presented.