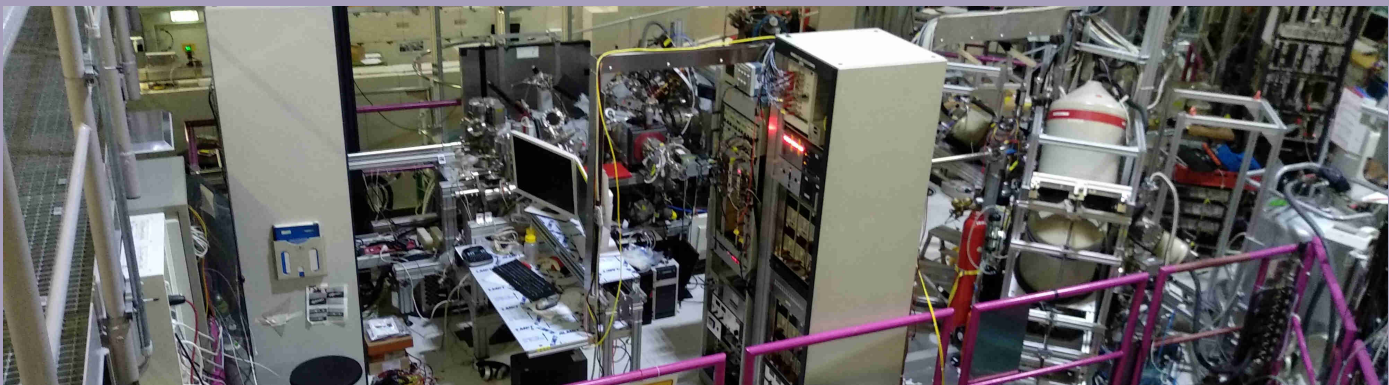


The NEutron-induced POsitrone source MUniCh (NEPOMUC) at FRM II at the TU München provides the worlds most intense anti-matter beam. In addition the positron physics research group operates further experiments sourced by β^+ -emitters in its laboratories at the physics department. These cover a wide range of topics ranging from basic to material science.

Master's Thesis

Measurement of the Age-Momentum Correlation of Positrons in Matter

The positron is a well-established probe to perform defect sensitive spectroscopy on all kind of materials. Typically, one can measure either the lifetime of the positron or the Doppler shift of the annihilation gamma quanta. Both methods give different insights into the concentration, distribution and size of lattice defects in the material. However, it is also possible to record both the energy shift and the time delay of the annihilation radiation simultaneously. The Age-Momentum Correlation (AMOC) technique combines gamma detection with high energy resolution and high time resolution in order to measure the correlation between positron lifetime and momentum. The thesis comprises the construction of a laboratory AMOC setup including the readout system for the detectors and data treatment. Finally, the setup will be benchmarked using an assortment of reference samples and metal alloys.



Working in our group you will have the chance to experience, applied physics research at first hand while collaborating with both engineers and scientist. Also you will gain insight into the way a large science facility is operated.

Please send applications to Leon Chryssos or Prof. Christoph Hugenschmidt. If you apply online, please send the documents collected in one PDF file.