

The Technical University of Munich (TUM) operates the research neutron source Heinz Maier-Leibnitz (FRM II) in Garching near Munich, which is one of the most powerful and modern neutron sources. The leading position in science in the field of research with neutrons is achieved by a cooperation between the TUM and the Forschungszentrum Jülich and Helmholtz-Zentrum Hereon under the name Heinz Maier-Leibnitz Zentrum (MLZ). We are looking for:

Internship - Practical Semester - B.Sc. Thesis Physical Engineering - Electronic Engineering

Hacking of commercial Power Supply Units

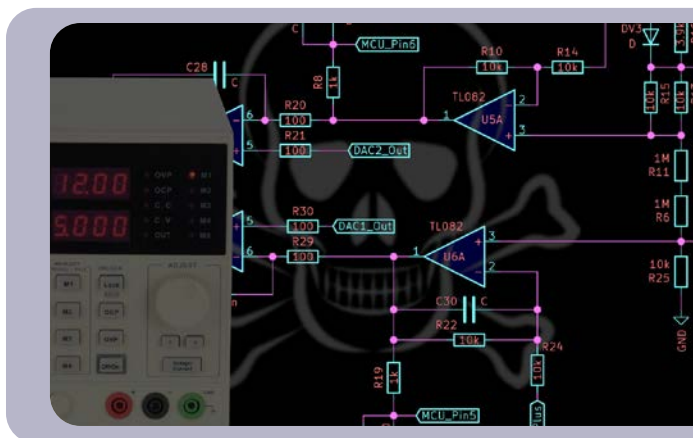
Our facility is home to NEPOMUC, the world's most intense cold antimatter beam and a unique probe for material defect studies, surface investigation and fundamental research in quantum physics.

Contact between antimatter and ordinary matter causes their sudden annihilation, hence the manipulation of e⁺ beams happens mostly through their interaction with electric and magnetic fields. As a result, NEPOMUC's operations are carried out through the use of hundreds of current and voltage power supplies.

Recent upgrades have exposed the limitations of our oldest and most extensively used PSU model in NEPOMUC. The resulting bottleneck is now limiting future improvement of the instrument.

As an applicant you will be tasked with supporting the NEPOMUC team in the ongoing effort to completely overhaul the existing voltage-controlled B-amplifier-type PSUs and turn them into current-controlled switching power supplies while maintaining as much as the original hardware as possible. The work will involve:

1. Assembling and testing prototypes, including the construction of specialized hardware to stress-test the modified PSUs.
2. Writing high-performance firmware for the onboard MCUs and testing all of the prototype's subsystems.
3. Working with the TUM personnel to scale up the board construction to hundreds of units through the use of the Physics department's pick-and-place robots.



In case of an online application please send the documents compiled in a PDF file.