The Stefan Meyer Institute for Subatomic Physics in Vienna (SMI) of the Austrian Academy of Sciences (OeAW), Austria’s leading non-university research and science institution, is devoted to the study of fundamental symmetries and interactions. In its “Positron” group a

**Master Student Position (F*M)**

(part-time, 8 hours per week)

is open for applications.

The ASACUSA-Cusp experiment located at CERN, aims to measure the hyperfine structure of antihydrogen to better than one part in a million in a magnetic field free region. To accomplish this, a spin polarised beam of antihydrogen atoms will be produced and sent through a Rabi style spectrometer. To produce antihydrogen both positrons and antiprotons must be trapped, cooled, and then combined or mixed. Mixing occurs in the unique Double Cusp trap which, using a set of superconducting anti-Helmholtz coils, produces a magnetic field to both spin-polarise and focus the anti-atoms.

Antiprotons from CERN’s Antiproton Decelerator are trapped and conditioned in the MUSASHI (Monoenergetic Ultra-Slow Antiproton Source for High-precision Investigation) antiproton trap before being transferred to the Double Cusp trap. This project will involve the recommissioning of MUSASHI before the coming beamtime in September and then operation with antiprotons.

The successful candidate will visit CERN and start up the trap, learning vacuum technology, cryogenic techniques, electronics, annihilation detectors, and data acquisition and control using LabVIEW. Once in operation the student will then commission MUSASHI, at first using electrons while no antiprotons are available. The student will then be able to test the system by creating a non-neutral plasma which can be manipulated and measured. Several techniques and diagnostics will be developed including temperature measurement, rotating wall compression and evaporative cooling.

**Offer**

The student will join the SMI positron group for the duration of their studies (approx. 1 year), working with Dr. Dan Murtagh, Dr. Eric Hunter, and Andreas Lanz as well as other ASACUSA members from other institutions. Compensation will be made on minor contract basis (429,50 per month).

**Application**

Please send your application including your Curriculum Vitae, a cover letter per email to smi@oeaw.ac.at (mentioning Job ID: SMI053STUD221) no later than June 30, 2021.

For informal enquiries please contact Dr Murtagh at daniel.murtagh@oeaw.ac.at

*The Austrian Academy of Sciences (OeAW) pursues a non-discriminatory employment policy and values equal opportunities as well as diversity. OeAW lays special emphasis on increasing the number of women in senior and in academic positions. Given equal qualifications, preference will be given the female applicants.*