The Experimental Particle Physics group, a joint working group of the Institute of High Energy Physics (HEPHY) of the Austrian Academy of Sciences (OeAW) and the Institute of Atomic and Subatomic Physics at the Technische Universität Wien is a member of the experiments NUCLEUS, searching for coherent elastic neutrino-nucleus scattering (CEvNS), and CRESST, searching directly for Dark Matter; and home to the ELOISE project. The group’s focus is on simulation, data analysis, and the development of a new data acquisition system. NUCLEUS aims for the detection of CEvNS via nuclear recoils at sub-keV energies in cryogenic calorimeters based on CaWO₄ and Al₂O₃ crystals. For a reliable prediction of the expected background, the particle interactions have to be precisely simulated with the Geant4 framework. However, at these energies, the physics processes in the crystals are only poorly understood. ELOISE aims to systematically improve our understanding by developing and validating dedicated physics models for the sub-keV regime for NUCLEUS, but also for CRESST. In this context HEPHY is offering a

**PhD Student Position (f*M)**

(30 hour per week)

for a duration of 3 years. The expected starting date is no later than **July 1, 2022**.

**Your tasks:**
As part of NUCLEUS’s simulation team, you will apply ELOISE’s insights on the NUCLEUS background model. You will work closely with NUCLEUS’s material assay and data analysis teams to normalize the simulation to measured contamination levels and to validate the background model against calibration measurements. The outcome of the simulations will also be a valuable contribution to the analysis of the future CEvNS data taken with the experiment. Contributions to the future operation of the NUCLEUS experiment at its experimental site in Chooz, France are expected.

**Your profile:**
You have a master degree in experimental particle physics and a solid background in astroparticle or neutrino physics. Solid programming skills in C++ are mandatory. Additional expertise with the Geant4 simulation framework and with the ROOT tool for data analysis is advantageous. Solid English skills are needed.

**Our offer:**
We offer the possibility to work independently on a cutting-edge topic with great relevance in the field of neutrino and Dark Matter physics. You will be part of a highly motivated group of international researchers at Austria’s largest centre for experimental and theoretical particle physics. You will be entitled to numerous voluntary social benefits and flex time arrangement. Due to HEPHY’s central downtown location, you will be close to the vibrant heart of Vienna, Austrian’s biggest city and capital.

The annual gross salary according to the salary scheme of the Austrian Science Fund (FWF) for this position is € 32.204.20.

Please send your application including all relevant documents, certificates/references via e-mail to [hephy-office@oeaw.ac.at](mailto:hephy-office@oeaw.ac.at) (mentioning Job ID: HEPHY039DOC222) no later than **May 1, 2022**. For further information, please get in touch with Dr. Holger Kluck ([holger.kluck@oeaw.ac.at](mailto:holger.kluck@oeaw.ac.at)).

*The Austrian Academy of Sciences (OeAW) pursues a non-discriminatory employment policy and values equal opportunities, as well as diversity. Individuals from underrepresented groups are particularly encouraged to apply.*