PhD position

@the Dipolar quantum gas group at the University of Innsbruck and Institute for Quantum Optics and Quantum Information (IQOQI), <u>www.erbium.at</u> and

www.iqoqi.at

Openings 2024/2025

We are happy to announce our 2024/2025 opening for **one PhD position**. We are looking for talented and highly-motivated candidates to join our dipolar quantum gases group (<u>www.erbium.at</u>) at the University of Innsbruck and the Institute for Quantum Optics and Quantum Information IQOQI-Innsbruck (<u>www.iqoqi.at</u>), Austria.

Current openings:

Exp-PhD@Er-Dy LAB

About Us

Our group, led by Prof. Francesca Ferlaino, is jointly located at the University of Innsbruck (UIBK) and at the Institute for Quantum Optics and Quantum Information (IQOQI) of the Austrian Academy of Science.

We work with highly magnetic Erbium (Er) and Dysprosium (Dy) lanthanide atoms, either in the ground- or in highly excited Rydberg states. The group comprises four research teams, three experimental and one theoretical. Our three Labs work on Erbium and Dysprosium dipolar quantum gases, Er-Dy mixtures, and Er Rydberg Tweezers.

Learn more about our research take a look at our website www.erbium.at

Joining Us

It is an exciting time to work with ultracold highly-magnetic quantum gases, owing to the groundbreaking discoveries of novel phases of matter and quantum phenomena in lanthanide species.

Working with us will provide a unique opportunity to perform exciting experiments at the frontier of quantum physics, engage with physicists in an exceptional international environment, and to collaborate with a large network of researchers worldwide. Members of the group will develop valuable technical skills in electronics, photonics, programming, data analysis and so much more. Join us in pushing forward the frontiers of quantum physics with ultracold lanthanide atoms!

HOW TO APPLY?

We are looking forward to your application! If you are interested, send an email to <u>francesca-ferlaino-group@uibk.ac.at</u>, including a CV, a letter of motivation, transcript of exams (Bachelor and Master), and names + contact info of references (minimum one person). The application will be considered upon reception and until the available positions are filled.

Our group is strongly committed to ameliorate the gender balance in Physics at all scientific career levels, and therefore **we particularly encourage applications from women**. We offer a gross salary for these positions following the salaries schemes of the Austrian Founding Agency (FWF).

Qualifications: A master degree or equivalent, including a research project (master Thesis or Internship) in experimental AMO group is required to start a PhD with us. In case you have not yet finished your Master degree, or you want to acquire experimental experience in ultracold atoms, look at our <u>Excellence Fellowship program for visiting</u> master students.

Experimental PhD position: quantum gas microscope for dipolar quantum gases

In this project you will create lattice-confined ultracold dipolar gases of Erbium and Dysprosium to investigate extended Bose and Fermi Hubbard models and their exotic topological phases. Our experiment is equipped with a single-lattice-site-resolution objective, which offers direct access to the quantum phase of the ultracold dipolar gas.



You will work in a team of two PhD students, one post-Doc, co-PI Manfred Mark, and PI Francesca Ferlaino. Moreover, you will collaborate with the ultracold-quantum-gas theory group in Innsbruck and a network of external collaborators. The <u>Er-Dy LAB</u> located at the University of Innsbruck is fully operative.

The candidate must have already proven expertise in experimental atomic physics.