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## EXCELLENCE FELLOWSHIP PROGRAM FOR VISITING MASTER STUDENTS.

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Dipolar Quantum Gas Group – University of Innsbruck and  
Institute for Quantum Optics and Quantum Information,  
Austria.

In the wake of ground-breaking discoveries in novel phases of matter and quantum phenomena, the field of dipolar quantum gases offers an unparalleled opportunity for students eager to join the next wave of quantum innovation. Our group is happy to announce the 2024 edition of the **Excellence Fellowship Program for External Master Students**. Within this Fellowship program, we offer four distinct projects in both theory and experiment:

- (A) Theoretical simulation of the phase diagram and dynamics of the rich physics of quantum gases under the effect of long-range dipole-dipole interaction. (Theory)
- (B) Clock-light driven lattice spin models with dipolar quantum gases of erbium. (Experiment)
- (C) Erbium-Dysprosium dipolar mixture under a quantum gas microscope. (Experiment)
- (D) Developing a quantum simulator based on tweezer arrays of Rydberg multi-electron lanthanide atoms. (Experiment)

Working on these projects will afford students 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. Fellowship Master students 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!

To learn more about our research, visit [www.erbium.at](http://www.erbium.at)

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### WHAT ARE THE BENEFITS?

Students granted an Excellence Fellowship will be provided with **full financial support for accommodation** to cover the cost of a room in a student house, or in a shared flat in the city of Innsbruck. Students will also receive **administrative support for all organizational matters related to their internship**. These benefits will be provided for the duration of the internship, lasting no longer than 10 months.

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## WHAT ARE THE REQUIREMENTS?

Eligible candidates are physics students that have completed a **bachelor degree in Physics and are currently enrolled in a Master programme at a university other than the University of Innsbruck**. The student should have knowledge on quantum physics with emphasis on atomic physics. For the experimental projects, a solid background in experimental atomic, molecular and optical physics is not strictly required but certainly preferred. Most important qualities that we are searching for are motivation, curiosity, and passion for physics and its techniques.

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## WHAT ARE THE DEADLINES?

**Applications are open until the 14th of April 2024.** Applications will be evaluated on a rolling basis until all available positions are filled. Within the two weeks following receipt of the application, candidates will be informed via email whether or not they have been selected for the next evaluation step.

Selected candidates will then be interviewed by at least one senior member of our group, either remotely (video conference) or in-person (during a visit in Innsbruck). Following this interview, applicants will be informed of the results of the Fellowship evaluation. Awardees should confirm the acceptance of the Fellowship within two weeks via email, or the award offer will be withdrawn.

Start date for the internship is flexible but should happen **before November 2024**.

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## HOW TO APPLY?

Simply send an email to [francesca-ferlaino-group@uibk.ac.at](mailto:francesca-ferlaino-group@uibk.ac.at) with the subject line “Excellence Fellowship” as soon as possible, including your motivation, as well as your CV, transcript of exams, and names + contact info of references (minimum one person).

