

PhD position at Atominstitut, TU Wien
Research group: Quantum metrology,
https://ati.tuwien.ac.at/research_areas/qme/startpage/EN/

We offer one full-time 3 years PhD position for highly motivated and well-qualified early stage researcher to work on the theoretical modelling of superradiant lasers (active optical clocks).

The position will be financed within the MoSaiQC Innovative Training Network. This is a EU funded project (No. 860579) belonging to the [Marie Skłodowska-Curie Research Network](#). MSCA fellowships are part of the Innovative Training Network (ITN). ITNs are competitively awarded, multi-beneficiary, international research and training networks providing post-graduate training in specific and inter-disciplinary scientific fields. They bring together networks of research-performing institutions – from both the academic and non-academic sectors – around a common research and training programme to strengthen the career perspectives of early-stage researchers and to support entrepreneurship, creativity and innovation across Europe.

MoSaiQC network is aimed to train 15 PhD candidates (Early Stage Researchers) to become experts on optical atomic clocks, and acquire a wide range of skills, from foundations to applications, which will be relevant for their further career in academia and industry, see <https://www.mosaiqc.eu/> for more details.

Research objectives:

Development and optimization of the superradiant clock require an advanced understanding of the superradiance process in real experimental setups of our experimental collaborators, taking into account various environmental conditions, atom replenishment, auxiliary fields, atomic interactions etc. The PhD student will investigate the role of these effects, develop relevant computational models, and help experimentalists to improve the characteristics of superradiant signal. Close collaboration with other experimental and theoretical groups of the MoSaiQC Innovative Training Network, especially during the secondments, provide the student with knowledge of real-life issues of experimental implementations as well as about various modern theoretical and computational methods.

Candidates must hold a master degree in physics or should complete the requirements for a degree soon, have a strong interest in quantum metrology, and be able to perform involved mathematical calculations and numerical simulations. Skills in programming, simulations, as well as background in quantum optics are an advantage on the enrollment. Female candidates are strongly encouraged to apply.

Formal requirements:

At the date of recruitment the candidate should not have resided in Austria for more than 12 months in the last 3 years, unless as part of a procedure for obtaining refugee status under the Geneva Convention. Also, the candidates should fulfill the formal requirements for Early-Stage Researchers (ESRs). i.e., at the date of recruitment by the beneficiary, they should be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree, [see here for more details](#) (some exceptions can be possible due to COVID-19 situation)

Benefits:

- Interesting working environment in an large international institute
- Possibility to participate in career development events and extra training programs (such as CoQuS, see <https://www.coqus.at/>).
- Possibilities to participate in conferences, public outreach events, etc.
- Secondments and visits to other research centers within MoSaiQC training network
- Wide choice of diverse doctoral study courses
- English speaking environment
- Vacation days: 25 days
- Parental leave possible
- Salary according to the B1 level of the Austrian Collective Agreement for university staff and corresponds to a gross salary of 2.864 EUR/Month (14 times/year)
- Additional tax-free payment of a mobility allowance of 600 EUR
- Additional tax-free family allowance 250 EUR

([see here for more benefits](#))

Selection procedure:

Selection will be performed in two rounds. First, all the formally suitable candidates will be interviewed, and those of them who have relevant skills, background, career development prospective and motivation will be pre-selected for the second round. Then the pre-selected candidates will get the test task (same for all of them), and the final selection will be based on the performance of this task. Please read the Charter and Code for recruitment [here](#). TU WIEN is handling data according to the GDPR. In the case of an unsuccessful application, submitted information will be deleted within six months after the closure of the application procedure.

The starting date is flexible, and depends on the COVID-19 situation.

Interested candidates are invited to submit a letter describing their research interests, a detailed CV, a grade certificate from master and bachelor studies, and (optionally) the electronic (email) contact details of potential referee(s).

All applications should be sent in electronic form to Dr. Georgy A. Kazakov, kazakov.george@gmail.com.

The dead-line for application is: 06.07.2020 06:00 UTC (extended due to COVID-19 situation).