As a University of Excellence, Universität Hamburg is one of the strongest research universities in Germany. As a flagship university in the greater Hamburg region, it nurtures innovative, cooperative contacts to partners within and outside academia. It also provides and promotes sustainable education, knowledge, and knowledge exchange locally, nationally, and internationally.

Pending approval of external funding the MIN Faculty, Department of Physics, Institute for Laserphysics (ILP) invites applications for a

**RESEARCH ASSOCIATE FOR THE PROJECT**

**“QUANTUM SIMULATION WITH YB RYDBERG ATOMS IN OPTICAL TWEEZERS ” WITHIN THE SFB925 “LIGHT INDUCED DYNAMICS AND CONTROL OF CORRELATED QUANTUM SYSTEMS”**

- SALARY LEVEL 13 TV-L -

The position in accordance with Section 28 subsection 3 of the Hamburg higher education act (Hamburgisches Hochschulgesetz, HmbHG) commences on 15.03.2021.

This is a fixed-term contract in accordance with Section 2 of the academic fixed-term labor contract act (Wissenschaftszeitvertragsgesetz, WissZeitVG). The term is fixed until 14.03.2024. The position calls for 75 % of standard work hours per week**.

**RESPONSIBILITIES:**

Duties include academic services in the project named above. Research associates may also pursue independent research and further academic qualifications.

**SPECIFIC DUTIES:**

Quantum information processing and quantum simulation of complex many-body systems employing Rydberg atoms in optical tweezers has developed into a vivid field of research recently. In our project we work towards the realization of a flexibel optical tweezer based Rydberg quantum processor employing alkaline-earth like Yb atoms (AEA). We want to take advantage of the possibilities AEA offer over the widely used alkali atom based Rydberg tweezer experiments like an optical clock transition for more sophisticated qu-bit realizations and the option of triple magic optical trapping to significantly enhance Rydberg coherence times. Among others, your tasks will include the setup and characterization of a highly stable UV Rydberg laser system, spectroscopic measurements and identification of the most suitable Yb Rydberg states as well as the characterization of the fidelity of one-qubit gates on the clock transition. Ultimately, we plan to demonstrate high fidelity two-qubit gates and quantum simulation of spin models with Rydberg dressed atoms.

* Full-time positions currently comprise 39 hours per week.
**REQUIREMENTS:**

A university degree in a relevant field. A Master of Science or equivalent in physics. Detailed knowledge in the field of experimental quantum gas physics especially trapping and laser cooling of alkaline-earth atoms, optical clock operation and advanced laser frequency and laser intensity stabilization schemes.

The Free and Hanseatic City of Hamburg promotes equal opportunity. As women are currently underrepresented in this job category at Universität Hamburg according to the evaluation conducted under the Hamburg act on gender equality (Hamburgisches Gleichstellungsgesetz, HambGleiG), we encourage women to apply for this position. Equally qualified and suitable female applicants will receive preference.

Qualified disabled candidates or applicants with equivalent status receive preference in the application process.

For further information, please contact Prof. Klaus Sengstock or consult our website at http://photon.physnet.uni-hamburg.de/de/ilp/sengstock/.

Applications should include a cover letter, a tabular curriculum vitae, and copies of degree certificate(s). Please send applications by 12.02.2021 to: sengstock@physnet.uni-hamburg.de.

Please do not submit original documents as we are not able to return them. Any documents submitted will be destroyed after the application process has concluded.