



## New Project on Atomic Quantum Processors: Open PhD/Master Positions in Vienna

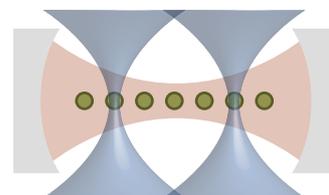
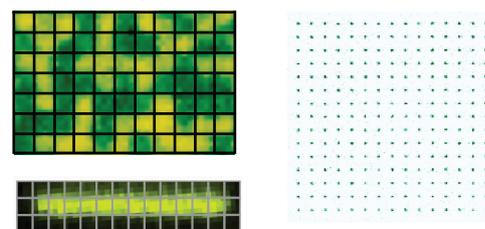
We are starting a new project to build next-generation quantum processors with applications to quantum materials, quantum chemistry, and quantum computing. We are looking for motivated PhD and Master students to join our team.

Quantum computers and simulators have the potential to solve a wide range of problems more efficiently than classical computers. Cold atoms present a leading platform in this context, unmatched in size and scalability. In your thesis work, you will realize a new architecture for a quantum processor, which uniquely combines single-atom resolved manipulation through microscopy with the interaction control arising from light-matter coupling. This approach provides new opportunities to realize quantum states with non-local entanglement and perform quantum-limited measurements.

We offer the possibility of performing experiments at the forefront of quantum information science in an international environment. We expect a strong motivation and commitment to our research. Starting time for the PhD/Master positions is at your earliest availability.

### During the project you will

- Contribute to cutting-edge research in quantum science
- Experience an international, collaborative scientific environment
- Develop scientific skills by performing experiments in quantum information science
- Acquire technical skills in optics, mechanical engineering, data analysis, etc.
- Improve your communication skills by presenting your results on international conferences and collaborating with colleagues from the leading research groups across the world



Top: Single atom-resolved fluorescence imaging of quantum states in an optical lattice (left) and a Rydberg tweezer array (right). Bottom: Illustration of the planned quantum processor, featuring individual addressing beams (blue) on an array of atoms (green) that is coupled to a cavity field (red).

If you want to join us on this adventure, please send your application to to: [julian.leonard@tuwien.ac.at](mailto:julian.leonard@tuwien.ac.at)  
We particularly encourage applications from women and other underrepresented groups in physics.  
For more information visit our website [www.quantuminfo.at](http://www.quantuminfo.at)



Julian Léonard is an experimental physicist working on quantum information and quantum many-body systems. Following his PhD at ETH Zurich on atom-light interactions, he went to Harvard University to perform postdoctoral research on quantum simulations with optical lattices. Awarded the START prize 2021, he started his own research group as an assistant professor at TU Wien in November 2021.