Master or Project Thesis in Quantum Many-Body Physics (German/English)

SCAN ME

Describing the behavior of interacting atoms theoretically is very hard: Some **many-body problems** cannot be solved even when using the best computers.

However, several interesting phenomena arise only when numerous atoms interact with each other. For example, in so-called **time crystals**, atoms can start to oscillate collectively. Interestingly, the more atoms are present, the longer the oscillation persists. The goal of this work is to investigate whether the atoms oscillate for longer times when they are **placed strategically in space**.

You will also learn the following things:

- How to model the interaction between atoms and light.
- What open quantum systems are and how to describe them.
- What matrix product states (MPS) are and why they are a powerful tool to solve quantum many-body systems.

Lectures in quantum mechanics and programming are required. We strive to increase the representation of women in our research group.

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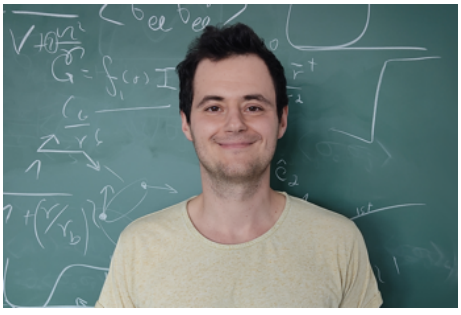
Web: https://www.tuwien.at/en/phy/itp/pohl-group

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