

# MODERN QUANTUM SIMULATIONS

## WE ARE LOOKING FOR Simulation Developer / Computational Engineer

Keywords: Quantum Computing, Physics Modelling, Simulations

Modern physics, including the standard model, is described by quantum field theories, which are challenging to simulate on classical computers due to massive data storage needs and exponential scaling. Emerging quantum computers are expected to overcome these limitations. To validate this, quantum algorithms for simplified quantum models must be benchmarked against classical simulations.

The Walther-Meißner-Institute is Germany's academic leader in superconducting qubits. Its laboratories develop and test cutting-edge quantum computers, with processors of up to 17 qubits recently becoming available for running quantum algorithms. In this dynamic environment, simulating quantum systems is poised to demonstrate the first instances of quantum advantage.

We are looking for you, if you:

- Study computer science
- Have simulation experience with Python (or similar) frameworks
- Are interested in new technologies, especially quantum computing
- Can work proactively and independently
- Have a good knowledge of English

According to your strengths, you support us in:

- Developing simulations of physical systems such as quantum field theories
- Improving computational models in terms of storage efficiency & computational speed
- Investigating the scaling properties of code
- Supporting the research on quantum computing algorithms

What we offer:

- **Real-world impact:** Your modules are used for benchmarking modern quantum computing algorithms
- **Flexibility:** Work schedule and working hours can be agreed with each IDP student
- **Responsibility and ownership:** Good work and ownership are rewarded, as you can shape your own role in the team
- **Support your studies:** We will coach you on your personal agenda and way forward
- **Rewards:** If your contributions to the project are deemed important, a publication in refereed journals is a possibility.

More about us:

<https://www.wmi.badw.de/home>

**Your move:**

Sounds interesting? Send us your profile via email! If you have questions about the position or about us, contact us directly:

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