

# Master thesis in Experimental Physics: Non-contact thermal control system with mK precision

(f/d/m, available immediately)

The **CANNEX** group in the research unit Neutron and Quantum Physics at the **Atominstytut** of TU Wien is offering a **Master position** in experimental physics for the worldwide only parallel plate force metrology setup CANNEX.

## What we offer:

- ▶ You can take part in an internationally unique experiment searching for dark matter, dark energy, (quantum) gravity, and other new physics.
- ▶ A thesis contributing to active research with the perspective to do publications already on master level.
- ▶ International team of experts
- ▶ Opportunities to learn a variety of different skills, and forge first scientific contacts helping to find a PhD position later.
- ▶ Your own (sub-)project.

## What you should bring:

- ▶ Willingness to start immediately.
- ▶ An open, friendly, and team-oriented mindset. You are a person one can rely on.
- ▶ Willingness and motivation to learn quickly both independently and in an international team, adapt to challenging situations, and to go the extra mile it takes to have success.
- ▶ Nice to have: programming skills (ideally Python, C/C++ on microcontrollers, Mathematica)
- ▶ A basic understanding of heat transmission mechanisms and feedback mechanisms.
- ▶ Motivation to learn numerical simulations with Comsol.

**Our credo is: You come to learn, not because you already know it all!**

## Your tasks:

- ▶ Analyze and implement an already designed highly accurate thermal control system using numerical simulations and measurements.
- ▶ Verify thermal simulation results with analytical estimates and measurements
- ▶ Perform highly accurate calibrations, performance tests, and optimizations.
- ▶ Write control and evaluation software
- ▶ Write your Master thesis.

**Institution:** TU WIEN is the largest institution for higher education and research focused on science and technology in Austria and has 4.800 employees and 29.000 students. The research unit Neutron and Quantum Physics at Atominstytut in Vienna operates several large experiments including CANNEX, qBounce, PERKEO, and is part of several international collaborations.

**Application procedure:** For further information contact Dr. René Sedmik (rene.sedmik@tuwien.ac.at). Being committed to enhance diversity, we particularly encourage female students to apply. Application **deadline 15 September 2024**.

