PhD Candidacy on Ultracold Polar Molecules in Optical Lattices
Centre for Quantum Technologies, National University of Singapore

Background and Project
We have an opening for a PhD research project to study a quantum gas of dipolar ground-state molecules. Our group is located at the Centre for Quantum Technologies (CQT) and the National University of Singapore. Our lab develops quantum technologies for the bottom-up control over quantum matter with applications in the areas of quantum simulation, quantum information, and precision measurements. Research on dipolar molecules is at the forefront of the field of ultracold quantum gases. The electric dipole of the molecules gives rise to a long range and non-isotropic interaction between them. This enables the study of intriguing quantum phenomena in optical lattices that cannot be studied with atoms. In this project we are aiming at demonstrating a new type of quantum phase exhibiting fundamentally new properties with respect to thermalization, as recently proposed by leading theorists in the field. The project is based on our experimental platform for LiK molecules for which particular striking effects due to a large dipole moment can be achieved. We are looking for a highly motivated individual who is expected to play a pivotal role in our research team. If you enjoy experimenting with cutting-edge technologies in a state-of-the-art laboratory you are welcome to join our team and participate in ongoing measurements from the start. This project is an excellent training opportunity to build a transferrable skill set for different future career paths and industries. The group is led by principal investigator Kai Dieckmann, who worked throughout his career on topics in ultracold quantum physics. Before coming to Singapore, he worked at leading groups at the Massachusetts Institute of Technology and the Max-Planck-Institute for Quantum Optics.

Scholarship Program
CQT (www.quantumlah.org/) is situated on the campus of the National University of Singapore. The centre is running its own PhD scholarship program and is open for applications all year round. With its over 150 international research staff and students CQT is providing a globally visible and inspiring environment for research in experimental and theoretical quantum physics. The bond free scholarship offers generous stipends and allowances for books, relocation, and conference travel. For more information: https://cqtphd.quantumlah.org/

Singapore
Located in the heart of South-East Asia, Singapore is an ultra-modern city-state offering impeccable infrastructure, superb food and celebrated multiculturalism. The climate is warm year-round. The National University of Singapore was ranked 11th in the QS World University Rankings 2019 and identified as the number one in Asia.

Application
You are a motivated and curious junior scientist and have a degree in physics (or will obtain it in the near future). Ideally, you have built a background in quantum mechanics, atomic physics, or quantum optics, or you have already worked in a cold atom or laser laboratory. Application documents should comprise of a CV, a set of transcripts (including an explanation of the grade system), and a single page motivational statement. Applications will be considered immediately until the position is filled. Please direct your enquiry to Kai Dieckmann (phydk@nus.edu.sg).