

Unit Name

Quantum Dynamics Unit

Students Supervised:

- Samardak Vadim
- Yip Ka Wing

Scholarly Contributions and Creative Productions (by Faculty)

Journal Article

1. Guo, W.; Konstantinov, D.; Jin, D.
Quantum Electronics on Quantum Liquids and Solids. *Progress in Quantum Electronics* 2025, 99.
2. Konstantinov, D.
Cryogenic Resonant Amplifier for Electron-on-Helium Image Charge Readout. *Journal of Low Temperature Physics* 2024, 215, 312–323.
3. Kostylev, I.; Hatifi, M.; Konstantinov, D.; Chepelianskii, A.
Delocalized Low-Frequency Magnetoplasmon in a Two-Dimensional Electron Fluid with Cylindrical Symmetry. *Physical Review B* 2024, 109.

Presentation at Conference

1. Konstantinov, D.
Quantum Computing with Electrons Trapped on Cryogenic Substrates. *Advanced Quantum Technologies for Trapped Ions (AQTTI) 2024*.
2. Konstantinov, D.
Rydberg States of Trapped Electrons for Quantum Computing. *Quantum Technologies with Floating Charged Particles 2024* 2024.
3. Konstantinov, D.
Rydberg-State Detection in a Small Ensemble of Trapped Electrons. *The 2024 International Symposium on Quantum Fluids and Solids 2024*.

Scholarly Contributions (by Unit Members)

Name of Unit Member	Type	Title	Outlet
Jui-Yin Lin	Poster Presentation at Conference	Comparison of RF Reflectometry and Image Charge Detection for Quantum State Detection of Electrons on Helium	2024 International Symposium on Quantum Fluids and Solids (QFS2024), Jacksonville, USA
Natalia Morais	Poster Presentation at Conference	Quasioptical Approach to Microwave Field Enhancement in Electron-on-Helium Qubit Systems	Quantum Innovation 2024

Name of Unit Member	Type	Title	Outlet
Natalia Morais	Poster Presentation at Conference	Boosting Microwave Field Control for Electron-on-Helium Qubit Applications	Quantum Technologies with Floating Charged Particles 2024 (QTFCP 2024), Okinawa, Japan
Jui-Yin Lin	Poster Presentation at Conference	Comparison of RF Reflectometry and Image Charge Detection for Quantum State Detection of Electrons on Helium	Quantum Technologies with Floating Charged Particles 2024 (QTFCP 2024), Okinawa, Japan
Tomoyuki Tani	Poster Presentation at Conference	RF-reflectometry for Studies of Rydberg Transition of 2-dimensional Electrons on Liquid Helium	Quantum Technologies with Floating Charged Particles 2024 (QTFCP 2024), Okinawa, Japan
Jui-Yin Lin	Poster Presentation at Conference	Rapid Sensing of Rydberg States in Electrons on Helium via Radio-Frequency Reflectometry	Quantum Innovation 2024
Mikhail Belianchikov	Poster Presentation at Conference	Rydberg-state detection in a small ensemble of trapped electrons	2024 International Symposium on Quantum Fluids and Solids (QFS2024), Jacksonville, USA
Mikhail Belianchikov	Poster Presentation at Conference	Rydberg state detection of electrons confined in microchannels	Quantum Technologies with Floating Charged Particles 2024 (QTFCP 2024), Okinawa, Japan
Wanting He	Poster Presentation at Conference	Electron chain on liquid helium as a quantum sensor	Quantum Innovation 2024
Ka Wing Yip	Poster Presentation at Conference	Developing Experimental Setup for Measurement of Electron Mobility on the surface of Neon	Quantum Innovation 2024
Ka Wing Yip	Poster Presentation at Conference	Developing experimental setup for electrons floating on the surface of solid neon	Quantum Technologies with Floating Charged Particles 2024 (QTFCP 2024), Okinawa, Japan
Ka Wing Yip	Poster Presentation at Conference	Current Progress in the Measurement of Electron Mobility on the Surface of Neon	OIST Global Career Workshop for Quantum Technologies
Mikhail Belianchikov	Poster Presentation at Conference	Rydberg-state detection in a small ensemble of trapped electrons	Quantum Innovation 2024
Natalia Morais	Presentation at Conference	Quasioptical Microwave Field Enhancement for Electron-on-Helium Qubits	2024 International Symposium on Quantum Fluids and Solids (QFS2024), Jacksonville, USA
Mikhail Belianchikov	Presentation at Conference	Rydberg transition of electrons on helium in microtrap chip	APS Global Physics Summit

Honors, Awards & Fellowships (only by unit members)

2024

Ka Wing Yip, Developing Experimental Setup for Measurement of Electron Mobility on the surface of Neon, Quantum Innovation 2024 Poster Presentation Awards for Young Researchers, 2024, Quantum Innovation 2024, N/A

External Service

- 2024 Guest Editor of the Special Issue of Journal of Low Temperature Physics, Journal of Low Temperature Physics, Guest Editor of the Special Issue of Journal of Low Temperature Physics “Quantum Technologies with Floating Charged Particles
- 2024 Member of the Advisory Board, The International Symposium on Quantum Fluids and Solids (QFS2024), Member of the Advisory Board for the International Symposium on Quantum Fluids and Solids (QFS2024), Jacksonville, August 2024

Workshops and Seminars (Organized and Hosted by Faculty/Units)

Speaker Name(s)	Title	Location	Co-Organizers	Date
Dmitrii Lvov	Thermometry based on a superconducting qubit and its applications	OIST		2024-10-29
Stephen Lyon, Princeton University Atsushi Noguchi, University of Tokyo Kimitoshi Kono, National Chiao Tung University Hartmut Haefner, University of California Berkeley David Schuster, Stanford University Hiroki Ikegami, IOP Chinese Academy of Science Michal Hejduk, Charles University Dafei Jin, University of Notre Dame Erika Kawakami, RIKEN Wei Guo, Florida State University Jose Verdu Galian, University of Sussex Paul Leiderer, University of Konstanz Ambarish Ghosh, Indian Institute of Science Maja Cassidy, University of New South Wales David Rees, EeroQ Alexei Chepelianskii, CNRS-University Paris-Saclay Mark Blumenthal, University of Cape Town Franz Schmidt-Kaler, University of Erlangen-Nuremberg (FAU)	Quantum Technologies with Floating Charged Particles	OIST Seaside house	Prof. Hiroki Takahashi (OIST), Dr. Erika Kawakami (RIKEN)	2024-05-28