

### 3. Program

Thursday 25 July

#### 8:30-9:00 Welcome and Introduction

- 8:30 Yoonseok Lee, Welcome Speech  
8:40 Mark Meisel (Maglab), The MagLab High B/T Facility at the University of Florida - Overview and Invitation to Potential Users  
8:50 Theodore Hodapp (Moore), Introduction on the Betty and Gordon Moore Foundation

#### 9:00-10:00 SESSION TH1 He3-1 *Chair*: Yoonseok Lee

- 9:00 TH1.1 Yutaka Sasaki, Detecting Chiral Vector Orientation of Chiral Domains in Superfluid  $^3\text{He-A}$   
9:20 TH1.2 Samuli Autti, Two-dimensional boundary superfluid at the edges of bulk superfluid  $^3\text{He}$   
9:40 TH1.3 Alexander Shook, Pumping Suppressed Gap States in  $^3\text{He-A}$  via Fourth Sound Resonance

10:00-10:30 COFFEE

#### 10:30-12:00 SESSION TH2 BECs-Vortices-1 *Chair*: Makoto Tsubota

- 10:30 TH2.1 Vincent Liu, Chiral Atomic superfluidity in Orbital Optical Lattice  
10:50 TH2.2 Yong-il Shin, Universal Kibble-Zurek Scaling in an Atomic Fermi Superfluid  
11:10 TH2.3 Jae-yoon Choi, Universality class of a spinor Bose-Einstein condensate far from equilibrium  
11:30 TH2.4 Alberto Vilhois, Vortex to Rotons Transition in Dipolar Bose-Einstein Condensates  
11:45 TH2.5 Wei-can Yang, Vortex efimov effect

12:00-13:30 LUNCH

#### 13:30-15:00 SESSION TH3 QFC-1 *Chair*: Vladimir Eltsov

- 13:30 TH3.1 Silke Weinfurter, Rotating Curved Spacetime Signatures from a Giant Quantum Vortex  
13:50 TH3.2 John Davis, HeLIOS: Searching for Wavelike Dark Matter Using Superfluid Electromechanics  
14:10 TH3.3 Rena Zieve, Rotational Glitches in Superfluid Helium  
14:30 TH3.4 Patrik Svancara, Dynamical Processes in a Quantum Liquid-Based Gravity Simulator  
14:45 TH3.5 Ken Obara, Superfluid Suction Vortex Generated by Fountain-pump

15:00-15:30 COFFEE

#### 15:30-17:00 SESSION TH4 VQT-1 *Chair*: Wei Guo

- 15:30 TH4.1 Yosuke Minowa, Excitation and Three-Dimensional Observation of Kelvin Waves on Quantized Vortices  
15:50 TH4.2 Mathieu Gibert, Direct visualization of the quantum vortex lattice structure, oscillations, and destabilization in rotating  $^4\text{He}$   
16:10 TH4.3 Andrei Golov, Visualization of the interaction of micron-sized particles with vortices in superfluid  $^4\text{He}$  down to 140 mK  
16:30 TH4.4 D. E. Zmeev, Investigating Steady and Oscillatory Flows in Helium Using a Superconducting Levitation System

#### 17:00-19:00 POSTER SESSION 1

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Friday 26 July

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**8:30-10:00 SESSION FR1 QIS Chair: Denis Konstantinov**

- 8:30 FR1.1 Dafei Jin, Recent progress in electron-on-solid-neon qubits  
8:50 FR1.2 Gerwin Koolstra, Progress in readout and control of an electron qubit floating on helium  
9:10 FR1.3 Asher Jennings, Plasmon-photon coupling using electrons on helium  
9:30 FR1.4 Kaiwen Zheng, Hybrid circuit QED platform between a transmon and an electron-on-solid-neon charge qubit  
9:45 FR1.5 Toshiaki Kanai, Single-electron qubits based on quantum ring states on solid neon surface

10:00-10:30 COFFEE

**10:30-12:00 SESSION FR2 CS Chair: James Sauls**

- 10:30 FR2.1 John Saunders, Cooling, noise mitigation, and decoherence in quantum circuits immersed in a quantum fluid bath  
10:50 FR2.2 Pertti J. Hakonen, Evidence for Bose-Einstein condensation of vacancies in helium adsorbed on a carbon nanotube  
11:10 FR2.3 Igor Boettcher, Superfluid phase transition of nanoscale-confined helium-3  
11:30 FR2.4 Adrian Del Maestro, Friedel Oscillations in One-Dimensional Superfluid  $^4\text{He}$   
11:45 FR2.5 Keiya Shirahama, Superfluidity of  $^4\text{He}$  films adsorbed on hexagonal boron nitride

12:00-13:30 LUNCH

**13:30-15:00 SESSION FR3 QFS Devices Chair: Dafei Jin**

- 13:30 FR3.1 Yogesh Patil, A proposal for detecting the spin of a single electron in superfluid helium  
13:50 FR3.2 Xavier Rojas, Observation of Duffing Non-Linearity in a Superfluid Sonic Crystal  
14:10 FR3.3 Maciej Zgirski, Quasiparticle Creation and Annihilation using a Single Manipulable Superconducting Vortex  
14:30 FR3.4 Hyungsoon Choi, All-metallic gate-tunable superconducting microwave resonators  
14:45 FR3.5 Nicholas R. Poniatowski, Detecting induced unconventional superconductivity with cQED

15:00-15:30 COFFEE

**15:30-17:30 POSTER SESSION 2 (Sponsor: Maybell Quantum)**

**17:30-18:45 QC LECTURE 1**

Stephen A. Lyon, Quantum Computing: Where Have We Come? Where Are We Going?

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Saturday 27 July

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**8:30-10:00 SESSION SA1 TSM** *Chair: John Davis*

- 8:30 SA1.1 Rongying Jin, Quantum-limit phenomena in rare-earth-based layered  $\text{EuZn}_2\text{As}_2$  and  $\text{CsNdSe}_2$
- 8:50 SA1.2 Juhn-Jong Lin, Observation of spin-triplet superconductivity in nonmagnetic  $\text{CoSi}_2/\text{TiSi}_2$  heterojunctions
- 9:10 SA1.3 Long Ju, Fractional Quantum Anomalous Hall Effect in Graphene
- 9:30 SA1.4 Venkat Chandrasekhar, Searching for signatures of non-trivial topology in diffusive multiterminal Josephson junctions
- 9:45 SA1.5 James Sauls, Anomalous Hall Effects in Chiral Superconductors

10:00-10:30 COFFEE

**10:30-12:00 SESSION SA2 He3-2** *Chair: Jeevak Parpia*

- 10:30 SA2.1 Petri Heikkinen, The A-B phase transition of superfluid helium-3 in a stepped-height nanofluidic platform
- 10:50 SA2.2 John Scott, Orientational transitions in Helium-3 imbibed in anisotropic aerogel
- 11:10 SA2.3 Riku Rantanen, Vortex core transitions in  $^3\text{He-B}$ : Answer to a 40-year-old puzzle
- 11:30 SA2.4 Anton B. Vorontsov, Superfluid He-3 in periodic aerogel structures
- 11:45 SA2.5 Takeshi Mizushima, Paramagnetic response of superfluid  $^3\text{He-B}$  in anisotropic aerogel: Anomalous proximity effect and Andreev bound states

12:00-13:30 LUNCH

**13:30-15:00 SESSION SA3 QLS-1** *Chair: Robert Hallock*

- 13:30 SA3.1 Keith Schwab, Quantum Circuits and Sensors with He-4: Superfluid Analogs of SQUIDS, FOGs, and Ring Lasers Gyroscopes
- 13:50 SA3.2 Jere Mäkinen, Exploring Fermi superfluids with strongly pinned vortices: Consequences for dynamics and thermodynamics
- 14:10 SA3.3 Man Nguyen, Transverse Sound in the Quantum Fluid States of He-3
- 14:30 SA3.4 Atsuki Kumashita, New Heat-capacity Measurements on the Commensurate–Incommensurate Quantum Phase Transition in Submonolayer  $^3\text{He}$  on ZYX Graphite
- 14:45 SA3.5 Simon Midlik, Parylene-bonded micro-fluidic channels for cryogenic experiments at superfluid He-4 temperatures

15:00-15:30 COFFEE

**15:30-17:30 POSTER SESSION 3 (Sponsor: Oxford Instruments)**

**17:30-18:45 QC LECTURE 2**

Alan Ho, Quantum Supremacy 5 years later

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Monday 29 July

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**8:30-10:00 SESSION MO1 IEQ Chair: Stephen Lyon**

- 8:30 MO1.1 Ambarish Ghosh, Signature of electronic phase transitions in multielectron bubbles  
8:50 MO1.2 Valery Milner, Rotational Control of Helium Dimers in Superfluid Helium  
9:10 MO1.3 Dominique Laroche, Signatures of exciton condensation in Si/SiGe bilayers  
9:30 MO1.4 Denis Konstantinov, Rydberg-state detection in a small ensemble of trapped electrons  
9:45 MO1.5 Camille A. Mikolas, Plasmon mode engineering and cQED with electrons on helium

10:00-10:30 COFFEE

**10:30-12:00 SESSION MO2 QLS-2 Chair: Eunseong Kim**

- 10:30 MO2.1 Andrey Vilesov, Phase separation in cold para-H<sub>2</sub> - D<sub>2</sub> clusters  
10:50 MO2.2 Ryuji Nomura, Quantum Dripping of Superfluid <sup>4</sup>He  
11:10 MO2.3 Taku Matsushita, Exploring Tomonaga-Luttinger liquid of the 1D <sup>3</sup>He using NMR  
11:30 MO2.4 Paul Sokol, Experimental realization of one dimensional helium  
11:45 MO2.5 Michele Sciacca, The one-fluid extended model of superfluid helium II: recent results

12:00-13:30 LUNCH

**13:30-15:00 SESSION MO3 VQT-2 Chair: Richard Haley**

- 13:30 MO3.1 Vladimir Eltsov, Vortex dynamics at sub-quantum length scales, probed with a NEMS device  
13:50 MO3.2 Makoto Tsubota, Numerical Studies of Quantum Turbulence  
14:10 MO3.3 Emil Varga, Transition from 2D to 3D quantum turbulence  
14:30 MO3.4 Amy Lester, Energy Emission from a Trapped Quantum Vortex in Superfluid Helium  
14:45 MO3.5 Yusuke Masaki, Second Harmonic Generation by Dynamics of Pinned Vortex

15:00-15:30 COFFEE

**15:30-16:30 SESSION MO4 BECs-Vortices-2 Chair: Yong-il Shin**

- 15:30 MO4.1 Nir Navon, Atomic Fermi Fluids in Optical Boxes  
15:50 MO4.2 Vanderlei Bagnato, Observation of relaxation stages in out-of-equilibrium closed quantum systems: the case of turbulence in atomic trapped superfluid  
16:10 MO4.3 Richard Fletcher, Quantum Hall physics in the quantum Foucault pendulum  
16:30 MO4.4 Noble Glusceovich, Dynamics of Topological Defects in <sup>3</sup>He-A Films following a Quench

**16:45-17:00 QFS26 Intro and Poster Award**

**18:00-20:00 Conference Banquet**

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Tuesday 30 July

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**8:30-10:00 SESSION TU1 QFC-2** *Chair: William Halperin*

- 8:30 TU1.1 Scott Hertel, Recent Quantum Evaporation R&D towards the HeRALD Dark Matter Experiment
- 8:50 TU1.2 Yining You, Superfluid Effective Field Theory: aspects of light dark matter detection and normal fluid viscosity
- 9:10 TU1.3 Christina Gao, Axion Wind Detection with the Homogeneous Precession Domain of Superfluid Helium Three
- 9:30 TU1.4 Theo Noble, QUEST-DMC: Looking for Low Mass Dark Matter in Superfluid  $^3\text{He-B}$
- 9:45 TU1.5 Sanjay Shukla, Gravity- and temperature-driven phase transitions in a model for collapsed axionic condensates

10:00-10:30 COFFEE

**10:30-12:00 SESSION TU2 CT** *Chair: Christian Enss*

- 10:30 TU2.1 Rakin Baten, Progress on LCMN thermometry
- 10:50 TU2.2 Ekaterina Mukhanova, Entanglement and noise in traveling wave Josephson parametric amplifiers
- 11:10 TU2.3 Andrew Casey, Immersing samples in helium-3, revisiting boundary resistance
- 11:30 TU2.4 Azimjon Temurjonov, Thermal Relaxation Effect in the Nanopore Heat Exchanger for Dilution Refrigerator
- 11:45 TU2.5 Natalia Morais, Quasioptical Microwave Field Enhancement for Electron-on-Helium Qubits
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