



QFS2021 International Conference Online



Centre for Nano Science and Engineering (CeNSE)
 Indian Institute of Science (IISc), Bangalore, India
 (10-14 and 16-19 August 2021)

Tuesday, 10 August 2021, 05:00PM – 07:45PM IST

05:00PM - 05:20PM IST	Welcome and opening remarks	
05:20PM - 05:30PM IST	Short break	
Quantum Turbulence [Session chair: Makoto Tsubota]		
05:30PM - 06:00PM IST	Wei Guo	Studying quantum turbulence in superfluid helium-4 using particle tracking velocimetry
06:00PM - 06:30PM IST	Ladik Skrbek	Phenomenology of quantum turbulence in superfluid helium
06:30PM - 06:45PM IST	Paul Walmsley	Multi-charged Quantized Vortex Rings in Superfluid ^4He
06:45PM - 07:00PM IST	Juan Ignacio Polanco	Counterflow-induced inverse energy cascade in three-dimensional superfluid turbulence
07:00PM - 07:15PM IST	Satoshi Yui	Coupled dynamics of quantum turbulence and synthetic normal-fluid turbulence in superfluid helium-4
07:15PM - 07:30PM IST	Gary Williams	Fundamental connection between temperature-quenched 2D superfluids and 2D quantum turbulence
07:30PM - 07:45PM IST	Q&A (15 minutes)	

Wednesday, 11 August 2021, 04:30PM – 08:30PM IST

04:30PM - 05:30PM IST	Poster session for Group A	
Quantum Gases [Session chair: Jacques Tempere]		
05:30PM - 05:45PM IST	Giovanni Modugno	Exploring the supersolid phase of matter with dipolar quantum gases
05:45PM - 06:00PM IST	Lauriane Chomaz	Self-organization in ultracold gases of magnetic atoms, evaporating to super-solid states
06:00PM - 06:30PM IST	Giacomo Roati	Tunneling transport in strongly interacting atomic Fermi gases
06:30PM - 06:45PM IST	Lindsay J LeBlanc	Engineering holonomies using Floquet driving in a BEC
06:45PM - 07:00PM IST	Hiromitsu Takeuchi	Quantum Elliptic Vortex in a Spinor Bose-Einstein Condensate
07:00PM - 07:15PM IST	Shankari Rajagopal	Spin Squeezing with Rydberg-Dressed Atoms
07:15PM - 07:30PM IST	Toshiaki Kanai	Merging dynamics of Rotating Bose-Einstein Condensates
07:30PM - 07:45PM IST	Q&A (15 minutes)	



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07:45PM - 08:30PM IST	Poster session for Group A	
Thursday, 12 August 2021, 04:30PM – 08:30PM IST		
04:30PM - 05:30PM IST	Poster session for Group B	
<u>Electrons, ions and quantum computing</u> [Session chair: Paul Leiderer]		
05:30PM - 06:00PM IST	Dafei Jin	Electron on solid neon - a new solid-state single-electron qubit platform
06:00PM - 06:30PM IST	Erika Kawakami	Towards realizing spin-qubits using electrons on helium
06:30PM - 06:45PM IST	Alexei Chepelianskii	Interaction effects in the electrons on helium system: from microscopic to macroscopic scales
06:45PM - 07:00PM IST	Hala Siddiq	Reconstruction of the electron oscillations on the surface of liquid helium
07:00PM - 07:15PM IST	Yiming Xing	Negative Ions in Superfluid Helium
07:15PM - 07:30PM IST	Neha Yadav	Bubbles in Superfluid Helium Containing Six and Eight Electrons: Soft, Quantum Nanomaterial
07:30PM - 07:45PM IST	Q&A (15 minutes)	
07:45PM - 08:30PM IST	Poster session for Group B	
Friday, 13 August 2021, 04:30PM – 08:30PM IST		
04:30PM - 05:30PM IST	Poster session for Group C	
<u>Detectors, techniques, dark matter</u> [Session chair: Christian Enss]		
05:30PM - 06:00PM IST	Anna Soter	Exotic atoms in superfluid helium
06:00PM - 06:15PM IST	Scott Hertel	HeRALD: A 4He detector for sub-GeV dark matter
06:15PM - 06:45PM IST	Johannes Pollanen	Hybrid systems based on qubits, superfluids, and electrons on helium
06:45PM - 07:00PM IST	Stephen Lyon	³ He-Based Quantum Sensing of Phonons for Dark Matter Detection
07:00PM - 07:15PM IST	Josepha Altmann	Development, design, and characterization of planar fine-pitch-coils for local probing of superfluid He-3 at sub-mK-temperatures
07:15PM - 07:30PM IST	Pertti Hakonen	Bolometer for Single Microwave Photon Detection using Graphene Junction



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		as Thermometer
07:30PM - 07:45PM IST	Q&A (15 minutes)	
07:45PM - 08:30PM IST	Poster session for Group C	
Saturday, 14 August 2021, 05:30PM – 08:30PM IST		
Plenary lectures [Session chair: John Saunders]		
05:30PM - 05:35PM IST	Welcome remarks	
05:35PM - 06:25PM IST	Kimitoshi Kono	Extrinsic particle states to uncover intrinsic quasiparticles in superfluid He
06:25PM - 06:30PM IST	Break 1	
06:30PM - 07:20PM IST	Jainendra Jain	Fractional quantum Hall fluid: Status report and unresolved issues
07:20PM - 07:30PM IST	Break 2	
07:30PM - 08:20PM IST	William P Halperin	Superfluid ³ He: innovation and discovery
08:20PM - 08:30PM IST	Summary by the session chair & closing remarks	
15 August 2021, Sunday		
Monday, 16 August 2021, 04:30PM – 08:30PM IST		
04:30PM - 05:30PM IST	Poster session for Group D	
Quantum solids, Superfluid helium [Session chair: Vladimir Eltsov]		
05:30PM - 06:00PM IST	Ryuji Nomura	Falling of 4He Crystals in Superfluid
06:00PM - 06:15PM IST	Henri Godfrin	The dispersion relation of Landau elementary excitations and the thermodynamical properties of superfluid ⁴ He
06:15PM - 06:45PM IST	John Davis	Opportunities in Quasi-2D Superfluids
06:45PM - 07:00PM IST	Samuli Autti	2D bound fermion system on the edges of superfluid ³ He vacuum
07:00PM - 07:15PM IST	Vladimir Khmelenko	Purely Spatial Quantum Diffusion of H Atoms in Solid H ₂ at Temperatures below 1K
07:15PM - 07:30PM IST	Karla Galdamez	Vortex-pair fluctuations at temperatures above and below the Kosterlitz-



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		Thouless transition in 2D superfluids
07:30PM - 07:45PM IST		Q&A (15 minutes)
07:45PM - 08:30PM IST	Poster session for Group D	
Tuesday, 17 August 2021, 04:30PM – 08:30PM IST		
04:30PM - 05:30PM IST	Poster session for Group E	
<u>Superfluid mechanics</u> [Session chair: Lee Yoonseok]		
05:30PM - 06:00PM IST	Jack Harris	Measuring high-order phonon correlations in a superfluid-filled optical cavity
06:00PM - 06:30PM IST	Warwick Bowen	Using light to control third sound in superfluid helium
06:30PM - 06:45PM IST	Xavier Rojas	Superfluid Optomechanics with Phononic Nanostructures
06:45PM - 07:00PM IST	Viktor Tsepelin	Real-Time Detection of Quantum Vortices in Superfluid-4 using NEMS
07:00PM - 07:15PM IST	Emil Varga	Nanoscale flows of ^4He : feedback control and 3D-to-2D crossover
07:15PM - 07:30PM IST	Yasmine Sfindla	Single-phonon nonlinearity in superfluid acoustic crystals
07:30PM - 07:45PM IST		Q&A (15 minutes)
07:45PM - 08:30PM IST	Poster session for Group E	
Wednesday, 18 August 2021, 04:30PM – 08:30PM IST		
04:30PM - 05:30PM IST	Poster session for Group F	
<u>Confined systems</u> [Session chair: Hiroshi Fukuyama]		
05:30PM - 06:00PM IST	Maria Carmen Gordillo	^3He and ^4He adsorbed on graphite
06:00PM - 06:15PM IST	Keiya Shirahama	^4He Confined in Nanoporous Media: 4D XY criticality at Finite Temperatures
06:15PM - 06:45PM IST	Igor Todoshchenko	New State of Matter: Topologically Protected Mobile Solid Helium-3 on Nanotube
06:45PM - 07:00PM IST	Markus Koch	Femtosecond photoexcitation dynamics of atoms and molecules inside helium nanodroplets
07:00PM - 07:15PM IST	Andrey F. Vilesov	Phase Separation in Freely Rotating $^3\text{He}/^4\text{He}$ Nanodroplets



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07:15PM - 07:30PM IST	Pramodh Senarath Yapa	Triangular Pair-Density Wave in Confined Superfluid ^3He
07:30PM - 07:45PM IST	Q&A (15 minutes)	
07:45PM - 08:30PM IST	Poster session for Group F	
Thursday, 19 August 2021, 05:30PM – 08:15PM IST		
Superfluid helium, topological phenomena [Session chair: Richard Haley]		
05:30PM - 06:00PM IST	Jeevak Parpia	Anomalous thermal transport of helium-3 in a strongly confining channel
06:00PM - 06:30PM IST	Vladimir Eltsov	Interacting superfluid time crystals
06:30PM - 06:45PM IST	Jim Sauls	Anomalous Hall Effects in Chiral Superfluids and Superconductors
06:45PM - 07:00PM IST	Vladimir Dmitriev	Superfluid β phase of liquid ^3He
07:00PM - 07:15PM IST	Petri Heikkinen	Fragility of surface states in topological superfluid ^3He
07:15PM - 07:30PM IST	Marie-Melody Volard	Experimental evidence of topological nodal line and Bogoliubov Fermi surface in superfluid ^3He
07:30PM - 07:45PM IST	Q&A (15 minutes)	
07:45PM - 08:15PM IST	Poster awards & closing remarks	