

International Workshop

Condensed Matter Solitons

June 29 – July 1, 2022

All times in the workshop program refer to Korean Standard Time (KST)

Program

Wednesday, June 29

8:45 – 9:00 Sergej Flach, PCS IBS
Opening address

Chairperson: Suk Bum Chung

9:00 – 9:45 *IBS Physics Colloquium @ Daejeon*
Jim Sauls, Northwestern University, USA
Edge States, Solitons & Novel Phases of Topological Superfluids

9:45 – 10:30 Daniel Agterberg, University of Wisconsin Milwaukee, USA
Pseudospin-triplet superconductivity in $CeRh_2As_2$

10:30 – 10:45 Workshop picture (Zoom) & Break

Chairperson: Moon Jip Park

10:45 – 11:30 Jeffrey Teo, University of Virginia, USA
A theoretical survey of bosonic topological phases in 2+1D in the perspective of emergent Dirac and Majorana fermions

11:30 – 12:15 Masatoshi Sato, Kyoto University, Japan
Bulk-boundary correspondence in point-gap topological phases

12:15 – 14:00 Break

Chairperson: Jee-Hoon Kim

14:00 – 14:45 Shun-Qing Shen, University of Hong Kong, Hong Kong
Helical Symmetry Breaking and Quantum Anomaly in Massive Dirac Fermions

14:45 – 15:30 Sang-Mo Cheon, Hanyang University, Korea
Topological Superconductivity and Majorana Fermion in Dirac semimetal under symmetry-lowering lattice distortions

15:30 – 15:45 Break

Chairperson: Se Kwon Kim

15:45 – 16:30 Soong-Geun Je, Chonnam National University, Korea
Topological properties of the family of magnetic skyrmions

16:30 – 17:15 Shu Zhang, MPIPKS, Germany
Biasing topological charge injection in topological matter

Thursday, June 30

Chairperson: Se Kwon Kim

- 9:00 – 9:45 Yong Baek Kim, University of Toronto, Canada
Detection of novel excitations in Kitaev magnets
- 9:45 – 10:30 Sang-Koog Kim, Seoul National University, Korea
Dynamics of Skyrmions in Curved-geometry Nanodots

10:30 – 10:45 Break

Chairperson: Suk Bum Chung

- 10:45 – 11:30 Mathias Kläui, University of Mainz, Germany
Skyrmions in Spin-Orbitronics and Orbitronics – novel science and applications in memory & non-conventional computing
- 11:30 – 12:15 Thomas Bilitewski, JILA, USA
From KPZ scaling to long-lived solitons in the classical Heisenberg chain

12:15 – 14:00 Break

Chairperson: Yong-il Shin

- 14:00 – 14:45 Jae-yoon Choi, KAIST, Korea
Observation of universal coarsening dynamics of a quenched ferromagnetic Bose-Einstein condensate
- 14:45 – 15:30 Panayotis Kevrekidis, Univ. of Massachusetts, Amherst, USA
Multicomponent Solitons in Atomic Bose-Einstein Condensates

15:30 – 15:45 Break

Chairperson: Moon Jip Park

- 15:45 – 16:30 Ashley Cook, MPI CPfS, Germany
Topological skyrmion phases of matter
- 16:30 – 17:15 Wang Yao, University of Hong Kong, Hong Kong
Layer pseudospin texture and Berry phase effects in Moiré superlattices

Friday, July 1

Chairperson: Suk Bum Chung

- 9:00 – 9:45 Oleg Tchernyshyov, Johns Hopkins University, USA
How a skyrmion can appear both massive and massless
- 9:45 – 10:30 Kamran Behnia, ESPCI, France
The Nernst response of mobile superconducting vortices

10:30 – 10:45 Break

Chairperson: Se Kwon Kim

- 10:45 – 11:30 Tae-Hwan Kim, POSTECH, Korea
Chiral solitons and chiral stacking orders in quasi-one-dimensional charge-density waves
- 11:30 – 12:15 Ki-Suk Lee, UNIST, Korea
Role of topological solitons in magnetization dynamics

12:15 – 14:00 Break

Chairperson: Jee-Hoon Kim

- 14:00 – 14:45 Jiadong Zang, University of New Hampshire, USA
Three-dimensional topological spin textures in chiral magnets
- 14:45 – 15:30 Guoqiang Yu, Chinese Academy of Sciences, China
Research progress of magnetic skyrmions in thin film heterojunctions

15:30 – 15:45 Break

Chairperson: Yong-il Shin

- 15:45 – 16:30 Hyounghoon Choi, KAIST, Korea
Quantized Vortices in Exciton-Polariton Condensate
- 16:30 – 17:15 Egor Babaev, KTH Royal Institute of Technology, Sweden
Type-1.5 superconductivity and vortex bound state
- 17:15 – 17:30 Closing remarks