

# Workshop

## *Topological States of Light and Beyond*

### Program

Monday, June 20

10:00 – 12:20 Registration

12:20 – 13:40 Lunch

13:40 – 13:50 Sergej Flach, PCS IBS  
Opening address

13:50 – 14:00 Andrey Miroshnichenko,  
Australian National University, Australia  
Opening address

14:00 – 14:40 Andrey Miroshnichenko,  
Australian National University, Australia  
*What's so special about topology?*  
(from a physicist's point of view) (lecture)

14:40 – 15:20 Konstantin Bliokh, CEMS RIKEN, Japan  
*Spin-orbit interactions of light* (lecture)

15:20 – 15:50 Coffee break

15:50 – 16:30 Alexander Khanikaev, City University of New York, USA  
*Topologically nontrivial states of light and sound*

16:30 – 17:10 Pilkyung Moon, New York University Shanghai, China  
*Twisted Bilayer Graphene*

17:10 – 18:00 Discussion break

18:00 – 20:00 Welcome reception

## Tuesday, June 21

- 10:00 – 10:40 Kwon Park, KIAS, Korea  
*Topological phases of matter: From quantum Hall effect to topological insulators to Weyl semimetals #1* (lecture)
- 10:40 – 11:10 Coffee break
- 11:10 – 11:50 Kwon Park, KIAS, Korea  
*Topological phases of matter: From quantum Hall effect to topological insulators to Weyl semimetals #2* (lecture)
- 11:50 – 12:30 Ki-Seok Kim, POSTECH, Korea  
*Dilute magnetic topological semiconductors*
- 12:30 – 14:00 Lunch
- 14:00 – 14:40 Jung Hoon Han, Sungkyunkwan University, Korea  
*Photoinduced Effects in Weyl Semimetals*
- 14:40 – 15:20 Andrew Greentree, RMIT University, Australia  
*From photon blockade to topological phase transitions of light:  
a (pre)-history of an exciting field*
- 15:20 – 15:50 Coffee break
- 15:50 – 16:30 Yidong Chong, Nanyang Technological University, Singapore  
*Anomalous Phases in Network Models and Photonic Lattices*
- 16:30 – 16:50 Daniel Leykam,  
Nanyang Technological University, Singapore  
*Edge Solitons in Nonlinear Photonic Topological Insulators*
- 16:50 – 17:10 Dmitry Kuzmin, Chelyabinsk State University, Russia  
*Non-reciprocity in cylindrical spiral graphene-based plasmonic waveguides*
- 17:10 – 18:00 Discussion break
- 18:00 – 19:00 Dinner

## Wednesday, June 22

- 10:00 – 10:40 Kwon Park, KIAS, Korea  
*Weyl nodes as topological defects of the Wannier-Stark ladder: From surface to bulk Fermi arcs*
- 10:40 – 11:10 Coffee break
- 11:10 – 11:50 Konstantin Bliokh, CEMS RIKEN, Japan  
*Quantum spin Hall effect of light*
- 11:50 – 12:30 Alexander Poddubny,  
ITMO University and Ioffe Institute, Russia  
*Nonlinear topological phases of light*
- 12:30 – 12:40 Workshop picture
- 12:40 – 14:00 Lunch
- 14:00 – 14:40 SungBin Lee, KAIST, Korea  
*Space group fractionalization  
in two dimensional nonsymmorphic crystals*
- 14:40 – 15:20 Roman Suesstrunk, ETH Zurich, Switzerland  
*Helical edge states in a mechanical topological insulator*
- 15:20 – 15:50 Coffee break
- 15:50 – 16:30 Jae Hoon Kim, Yonsei University, Korea  
*Topological Phase Transitions in Topological Insulators  
Probed by Terahertz Light*
- 16:30 – 17:10 Mehdi Biderang, APCTP, Korea  
*Verification of spin Hall conductivity and topological phases  
in noncentrosymmetric superconductors*
- 17:10 – 18:00 Discussion break
- 18:00 – 19:00 Dinner

## Thursday, June 23

10:00 – 10:40 Wenjie Chen,  
Hong Kong University of Science and Technology, China  
*Weyl points and topological notions in classical waves*

10:40 – 11:10 Coffee break

11:10 – 11:50 Anton Souslov, Leiden University, Netherlands  
*Topological acoustics and synthetic gauge fields  
in active liquids and mechanical metamaterials*

11:50 – 12:30 Max Lein, Tohoku University, Japan  
*Classification of Topological Insulators for Classical Light*

12:30 – 13:30 Lunch

13:30 – 19:00 Excursion

19:00 – 21:00 Workshop banquet

## Friday, June 24

- 10:00 – 10:40 Heung-Sun Sim, KAIST, Korea  
*Topological Entanglement in 1D Topological Superconductor at Finite Temperature*
- 10:40 – 11:10 Coffee break
- 11:10 – 11:50 Alexander Moroz  
*Two level quantum optics models: geometric phases, supersymmetry, invariant spaces, orthogonal polynomials, and differential operators of Dunkl type*
- 11:50 – 12:30 Kun Woo Kim, KIAS, Korea  
*Bulk photovoltaic effect in Dirac surface states and Weyl semimetal*
- 12:30 – 14:00 Lunch
- 14:00 – 14:20 Ivan Savenko, PCS IBS  
*Energy relaxation of exciton polaritons in periodic potentials*
- 14:20 – 14:40 Hyung In Lee, Seoul National University, Korea  
*Light spins of two-dimensional electromagnetic waves*
- 14:40 – 15:00 Andrey Miroshnichenko,  
Australian National University, Australia  
Closing remarks
- 15:00 – 15:30 Coffee break
- 15:30 – 18:00 Discussions
- 18:00 – 19:00 Dinner