



# Program

International workshop

”Variety and universality of bulk-edge correspondence in  
topological phases:

From solid state physics to transdisciplinary concepts”

BE/BC2020F (Bulk-Edge/Boundary Correspondence)

February 28-29, 2020

(as of February 16, 2020)

University of Tsukuba

Tokyo Campus, Myogadani, Tokyo

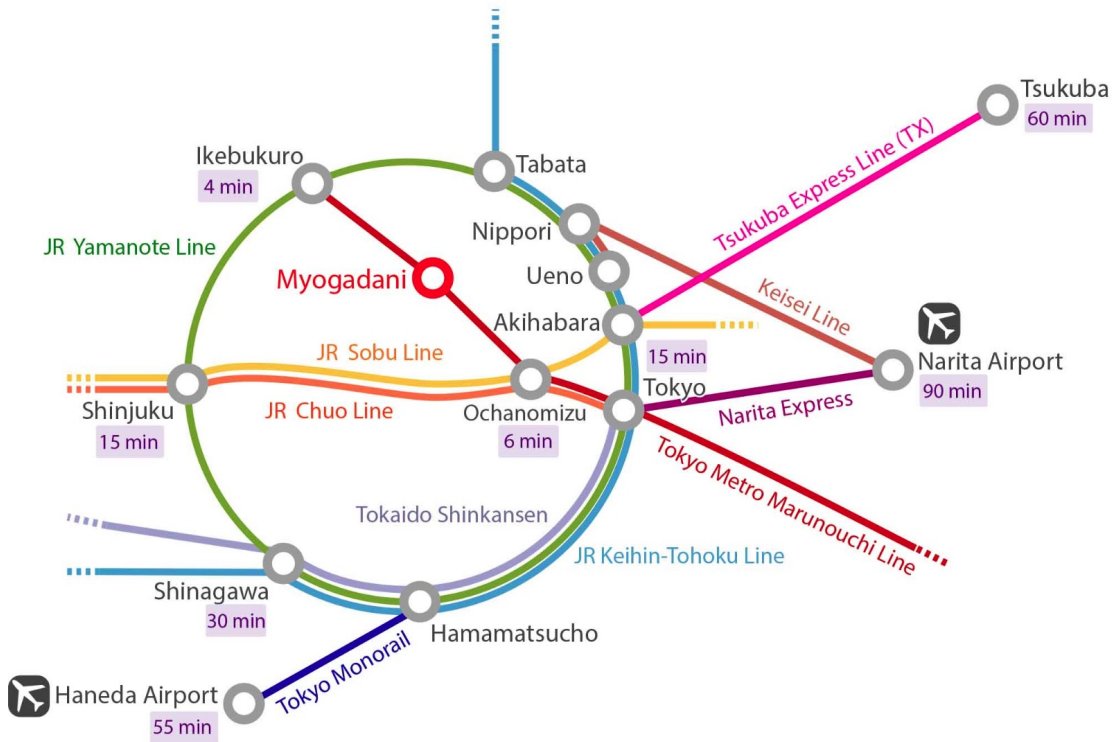
Scientific session

Oral session : Rm. 134

Poster session : Rm. 118 (Feb.28), Rm. 117 (Feb.29)

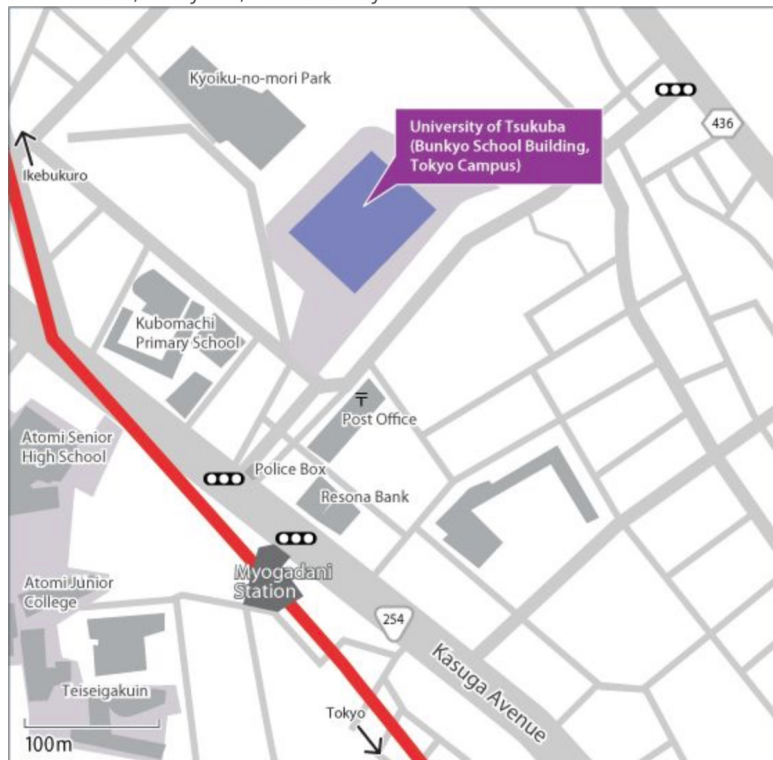
# Access to Tokyo Campus / Route Map

Tokyo Metro Marunouchi Line: Myogadani Station (about five-minute walk)



## Access Map

Address  
3-29-1 Otsuka, Bunkyo-ku, 112-0012 Tokyo



FEB.28 (FRI.), 2020

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8:20	Registration
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Session 1, Chair: A. Kimura	
8:40 – 9:00	<u>Yasuhiro Hatsugai</u> (Univ. of Tsukuba) “Welcome: Towards Science of Bulk-Edge Correspondence”
9:00 – 9:25	<u>Satoshi Iwamoto</u> (Univ. of Tokyo) “Light Propagation in Semiconductor Valley Photonic Crystals”
9:25 – 10:00	<u>Xiao Hu</u> (NIMS) “Topological Bulk Laser”
10:00 – 10:35	<u>Tomohiro Amemiya</u> (Tokyo Inst. Tech.) “Topological Silicon Photonics for Optical Vortex Control in Photonic Integrated Circuits”

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10:35 – 10:55	Coffee
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Session 2, Chair: T. Mizoguchi	
10:55 – 11:30	<u>Mikito Koshino</u> (Osaka Univ.) “Moire Phonons in Twisted Bilayer Graphene”
11:30 – 12:05	<u>Yohei Fuji</u> (Univ. of Tokyo) “Coupled-Layer Construction of Anisotropic Fracton Models”

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12:05 – 12:10	Photo
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12:10 – 13:15	Lunch
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Session 3, Chair: P. Delplace	
13:15 – 14:15	<u>Ching Hua Lee</u> (National Univ. of Singapore) “Physics of Non-Hermitian Bulk-Boundary Correspondence Breakdown”
14:15 – 14:40	<u>Tsuneya Yoshida</u> (Univ. of Tsukuba) “Fractional Quantum Hall State in a Non-Hermitian System”
14:40 – 15:05	<u>Hideo Aoki</u> (AIST/Univ. of Tokyo) “Imprinting Topological States with Superlattice-patterned Laser Fields in 2D Materials”

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15:05 – 16:05	Coffee & Posters/discussion
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FEB.28 (FRI.), 2020 (CONT.)

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Session 4, Chair: T. Kawarabayashi

16:05 – 16:30

Ryo Shimano (Univ. of Tokyo)

“THz Emission from Strong Spin-Orbit Coupling Materials”

16:30 – 17:05

Sota Kitamura (Univ. of Tokyo)

“Nonreciprocal Landau-Zener Tunneling”

17:05 – 17:30

Yoshihito Kuno (Kyoto Univ.)

“Topological Flat-Band Creutz Ladder: Many-Body Aharanov-Bohm Caging,  
Extended Flat-Band and Entanglement”

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Dinner (private)

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FEB.29 (SAT.), 2020

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Session 5, Chair: C. H. Lee

- 8:40 – 9:40            Pierre Delplace (CNRS, ENS de Lyon)  
 “Topological Waves in the Atmosphere and the Ocean”
- 9:40 – 10:15        Kyogo Kawaguchi (RIKEN)  
 “Edge modes in chiral active nematic cells”
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10:15 – 10:40        Coffee

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Session 6, Chair: Y. Hatsugai

- 10:40 – 11:40        Jinkyu Yang (Univ. of Washington)  
 “Topological Manipulation of Stress Waves in Mechanical Structures”
- 11:40 – 12:05        Takahiro Fukui (Ibaraki Univ.)  
 “Boundary-Obstructed Topological Phases of the Benalcazar-Bernevig-Hughes Model  
 in a Magnetic Field”
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12:05 – 13:15        Lunch

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Session 7, Chair: T. Fukui

- 13:15 – 13:40        Akio Kimura (Hiroshima Univ.)  
 “Incorporating Magnetism into Topological Materials”
- 13:40 – 14:15        Yutaka Akagi (Univ. of Tokyo)  
 “Topological Invariants for Magnon Systems with Disorder”
- 14:15 – 14:40        Mario Novak (University of Zagreb)  
 “ARPES Study of  $\text{EuIn}_2\text{As}_2$  and  $\text{EuCd}_2\text{As}_2$ -Candidates for Magnetically Ordered  
 Topological Materials”
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14:40 – 15:40        Coffee & Posters/discussion

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FEB.29 (SAT.), 2020 (CONT.)

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Session 8, Chair: S. Iwamoto

- 15:40 – 16:15            Nobuyuki Takei (Kyoto Univ.)  
“Disorder-Induced Thouless Pumping of Ultracold Atoms in an Optical Lattice”
- 16:15 – 16:40            Kenichiro Imura (Hiroshima Univ.)  
“Bloch Band Theory for Non-Hermitian Bulk-Edge Correspondence”
- 16:40 – 17:05            Tohru Kawarabayashi (Toho Univ.)  
“Bulk-Edge Correspondence in Deformed Topological Systems”
- 17:05 – 17:10            Yasuhiro Hatsugai (Univ. of Tsukuba)  
“Closing remark”

## POSTERS

- P 1.           Rasoul Ghadimi (Tokyo Univ. of Science)  
“Possibility of s-Wave Chiral Topological Superconductivity in Quasicrystals”
- P 2.           Hiroki Kondo (Univ. of Tokyo)  
“Three-Dimensional Topological Magnon Systems”
- P 3.           Gen Najima (Univ. of Tsukuba)  
“Dynamics of Symmetry-Protected Exceptional Ring in Mechanical System”
- P 4.           Koji Kudo (Univ. of Tsukuba)  
“Numerical Study of Adiabatic Heuristic for the Quantum Hall States”
- P 5.           Hiromu Araki (Univ. of Tsukuba)  
“Quantized Berry Phases for Characterization of the Higher-Order  
Symmetry-Protected Topological Phases”
- P 6.           Hiromasa Wakao (Univ. of Tsukuba)  
“Chiral Zero Modes Protected by a Spatial Symmetry in a Spring-Mass Model”
- P 7.           Motonobu Tomoda (Hokkaido Univ.)  
“Demonstration of Controlling Waves on a Wave Machine”
- P 8.           Kenshi Okuno (Okayama Univ.)  
“Design of Reconfigurable Valley Topological Phononic Structure using Metallic  
Circular Rods”
- P 9.           Ken Mochizuki (Hokkaido Univ.)  
“Chiral Floquet Topological Phases in One-Dimensional PT Symmetric Open  
Systems”
- P 10.           Haruka Kurihara (Univ. of Tsukuba)  
“Theoretical Study on Coexistence of Higher Order Topological Phase and Long  
Range Order”

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## POSTERS (CONT.)

- P 11. Hibiki Kagami (Tokyo Inst. Tech.)  
“Topological Taper Structure Towards Highly Efficient Coupling”
- P 12. Yuria Otaki (Ibaraki Univ.)  
“The 3D Higher Order Topological Insulator in the Uniform Magnetic Field”
- P 13. Yuki Soeda (Ibaraki Univ.)  
“Wilson-Dirac fermion on the Lieb lattice”
- P 14. Kota Ishii (Toho Univ.)  
“Berry’s phase in quantum phases of a Kagome magnet”
- P 15. Sho Okada (Tokyo Inst. Tech.)  
“Optical vortex coupler/combiner using topological edge state waveguide”
- P 16. Natsuko Ishida, Y. Ota, W. Lin,  
Y. Arakawa, and S. Iwamoto (Univ. of Tokyo)  
“Investigation on a single-mode array laser based on a topological edge state”
- P 17. Kaito Shiraishi (Hiroshima Univ.)  
“Angle resolved photoelectron spectroscopy of magnetically ordered topological insulator candidate  $\text{EuIn}_2\text{As}_2$ ”
- P 18. Hong Juang & Xiao Hu (NIMS, University of Tsukuba)  
“Topological Magnon Modes Induced by Coupling Texture on Honeycomb Lattice”
- P 19. Nobuyuki Takei (Kyoto Univ.)  
“Disorder-Induced Thouless Pumping of Ultracold Atoms in an Optical Lattice”
- P 20. Koichi Asaga (Ibaraki Univ.)  
“Boundary-obstructed topological phases of a Dirac fermion in a magnetic field”
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