

International Workshop on Dirac Electrons in Solids

January 14th (Wed) – 15th (Thu), 2015

Koshiba Hall, Department of Physics,

Second floor of Number 1 building of Faculty of Sciences, University of Tokyo



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“Dirac Electrons in Solids”

January 14 (Wednesday)

10:00 - 10:20 Opening M. Ogata (Department of Physics, University of Tokyo)

Bismuth (Chair: M. Ogata)

10:20 - 11:00 K. Behnia (LPEM-ESPCI)

“Orbital magnetoresistance of Dirac valleys in bismuth”

11:00 - 11:25 Y. Fuseya (University of Electro-Communications)

“Anomalous Spin Magnetic-Moment of Holes in Bismuth”

11:25 - 13:00 Lunch

Theories on Dirac electrons I (Chair :)

13:00 - 13:40 F. Piechon (CNRS, Universite Paris-Sud)

“From Dia- to Paramagnetic Orbital Susceptibility of Dirac Electrons”

13:40 - 14:05 T. Mizoguchi (Department of Physics, University of Tokyo)

“Meissner Effect in Superconducting Dirac Electrons”

14:05 - 14:30 S. A. Jafari (Sharif University of Technology)

“Optical conductivity of strongly correlated Dirac fermions”

14:30 - 14:55 M. Ezawa (Department of Applied Physics, University of Tokyo)

“Topological Dirac Electrons in Silicene, Germanene and Stanene”

14:55 - 15:15 Coffee Break

New materials (Chair :)

15:15 - 15:40 T. Hirose (ISSP, University of Tokyo)

“An Extreme Quantum-Limit State in AV_2Al_{20} ($A = Y, La$)”

15:40 - 16:05 H. Masuda (Department of Applied Physics, University of Tokyo)

“Magneto-transport properties of Dirac fermion coupled with Eu^{2+} local moments in a layered pnictide $EuMnBi_2$ ”

16:05 - 16:30 T. Tsumuraya (Riken)

“First-Principles Study of Dirac Cones in a Single-Component Molecular Crystal under High Pressure”

16:30 - 17:30 Poster preview (Chair :)

17:30 - 19:00 Poster section

20:00 – Dinner

January 15 (Thursday)

Ca₃PbO (Chair :)

9:00 - 9:25 H. Takagi (Department of Physics, University of Tokyo)

“3D Dirac electrons in anti-perovskite Sr₃PbO”

9:25 - 9:50 T. Kariyado (Tsukuba University)

“Spin Texture of the Surface State of Three-Dimensional Dirac Material Ca₃PbO”

9:50 - 10:10 Coffee break

Theories on Dirac Electrons II

10:10 - 10:50 A. Schnyder (Max-Planck Institute)

“ TBA ”

10:50 - 11:15 T. Tohyama (Tokyo University of Science)

“The Effect of Dirac Electrons on In-Plane Anisotropy and Superconductivity in Iron-Based Superconductors”

11:15 - 11:40 T. Morinari (Kyoto University)

“Chirality effect on superconductivity”

11:40 - 13:00 Lunch

Organic Conductor (Experiments) (Chair :)

13:00 - 13:40 N. Tajima (Toho University)

“Quantum Transport Phenomena in Molecular Dirac Fermion Systems”

13:40 - 14:05 Dong Liu (University of Tokyo)

“Transport and NMR studies of the Dirac electrons in α -(BEDT-TTF)₂I₃”

14:05 - 14:30 K. Miyagawa (Department of Applied Physics, University of Tokyo)

“NMR Studies of Phase Transition from Metallic State to Dirac Electron State in Organic System, θ -(BEDT-TTF)₂I₃”

14:30 - 14:50 Coffee break

Organic Conductor (Theories) (Chair :)

14:50 - 15:15 I. Proskurin (Department of Physics, University of Tokyo)

“Magnetoconductivity of Dirac Materials in Quantizing Magnetic Fields”

15:15 - 15:40 A. Kobayashi (Nagoya University)

“Electronic States of Molecular Dirac Fermion Systems under in-Plane Magnetic Field”

15:40 - 16:05 Y. Suzumura (Nagoya University)

“Plaquette Chirality Patterns for robust ZGS in α -type Organic Conductor”

16:05 - 16:30 T. Osada (ISSP, University of Tokyo)

“Helical Edge Transport in Quantum Hall Ferromagnetic State in Organic Dirac Fermion Systems”

Poster session

1. M. Matsuno (Department of Applied Physics, University of Tokyo)
“Possible NMR signatures of symmetry breaking in the Dirac Fermion material α -(BEDT-TTF)₂I₃ at high magnetic fields”
2. Y. Suzumura (Nagoya University)
“Reflectance of Dirac Electrons in Organic Conductor”
3. K. Kubo (Kyoto University)
“Effect of Interlayer Spin-flip Tunneling for Interlayer Magnetoresistance in Multilayer Dirac Fermion Systems”
4. H. Matsuura (Department of Physics, University of Tokyo)
“Effect of Defect on Dirac Electron Systems”
5. T. Shirakawa (Riken)
“Magnetic Impurity problems in graphene”
6. T. Yanagisawa (National Institute of Advanced Industrial Science and Technology)
“Dirac Fermions and Kondo Effect”
7. M. Mashkooi (Sharif University of Technology)
“Local magnetic moments in three dimensional Dirac material”
8. E. Ahmadi (Sharif University of Technology)
“Nature of eigenstates of Dirac electrons in quantum Dots”
9. G. Matsuno (Nagoya University)
“Effects of long-range Coulomb interaction in two-dimensional massless Dirac electron systems”
10. A. Sekine (IMR, Tohoku University)
“Weyl Semimetal with Strong Long-Range Coulomb Interactions”
11. N. Okuma (Department of Physics, University of Tokyo)
“g-Factor Renormalization on Surface State of Topological Insulator”
12. N. Okuma (Department of Physics, University of Tokyo)
“Study of Spin Transport in Dirac Systems”
13. T. Shibuya (Department of Physics, University of Tokyo)
“Spin Transport Dynamics of Topological Surface States in Magnetic Field”
14. N. Yoshioka (Department of Physics, University of Tokyo)
“Dirac cones in Hofstadter’s butterfly”

15. S. Suetsugu (Department of Physics, University of Tokyo)
“Anomalous Hall Effect in the Dirac Electron Systems with a Split Term”
16. Y. P. Mizuta (Kanazawa University)
“Thermopower of Doped Quantum Anomalous Hall Insulators: Towards First-Principles Evaluation”
17. A. Fujimoto (Osaka Institute of Technology)
“Negative Magnetoresistance in Ti-Cleaned Single Layer Graphene”
18. R. Suemasa (University of Electro-Communications)
“Magnetoelectricity and Anomalous g-Factor of the Luttinger Hamiltonian”
19. M. Owada (University of Electro-Communications)
“Magnetoelectricity of Dirac Electrons in Bismuth”
20. K. Seki (Riken)
“Correlation induced massless Dirac quasi-particles in graphene”
21. K. Kishigi (Kumamoto University)
“Quantum oscillations of magnetization in the tight-binding electrons with nearest-neighbor hoppings on a honeycomb lattice”
22. T. Kuraya (University of Electro-Communications)
“Band Structure of Superconducting Dirac Electron Systems”