

2022年度 物理学科大輪講 第6回

日時：11月30日(水)13時30分から
場所：西2号館502教室+オンライン(zoom)
(変更になりました. ご注意ください)
時間：25分(発表20分、討論5分)

前半(13:30-15:10)

座長：松本

1. 2018041053 (理論研究室) 13:30-13:55
THE EQUILIBRIUM AND THE STABILITY OF THE ROCHE ELLIPSOIDS,
Subrahmanyan Chandrasekhar,
Selected Papers, Volume 4, 430-461 (1989)
2. 2018041056 (理論研究室) 13:55-14:20
A View of the Triple Deck
R.E.Meyer
SIAM Journal on Applied Mathematics, Vol. 43, No. 4, pp. 639-663, Aug. 1983
3. 2019041043 (理論研究室) 14:20-14:45
Ising Transition Driven by Frustration in a 2D Classical Model with Continuous Symmetry
Cédric Weber, Luca Capriotti, Grégoire Misguich, Federico Becca, Maged Elhajal, and Frédéric Mila
Phys. Rev. Lett. **91**, 177202 Published 23 October 2003
4. 2019041008 (平野研究室) 14:45-15:10
Collective suppression of optical hyperfine pumping in dense clouds of atoms in microtraps
Shimon Machluf, Julian B. Naber, Maarten L. Soudijn, Janne Ruostekoski, and Robert J. C. Spreeuw
Physical Review A **100**, 051801(R) (2019)

後半 (15:20–16:35)

座長：渡邊

5. 2018041046 (平野研究室) 15:20–15:45
Utilizing machine learning to improve the precision of fluorescence imaging of cavity-generated spin squeezed states
Benjamin K. Malia, Yunfan Wu, Julián Martínez-Rincón, and Mark A. Kasevich
Physical Review A **105**, L010602 (2022)
6. 2019041045 (町田研究室) 15:45–16:10
Crossover Behavior of the Anomalous Hall Effect and Anomalous Nernst Effect in Itinerant Ferromagnets
T. Miyasato, N. Abe, T. Fujii, A. Asamitsu, S. Onoda, Y. Onose, N. Nagaosa, and Y. Tokura
Phys. Rev. Lett. 99, 086602 (2007)
7. 2017041025 (町田研究室) 16:10–16:35
Departure from the Wiedemann-Franz law in WP2 driven by mismatch in T-square resistivity prefactors.
Alexandre Jaoui, Benot Fauqu, Carl Willem Rischau, Alaska Subedi, Chenguang Fu, Johannes Gooth, Nitesh Kumar, Vicky S, Dmitrii L. Maslov, Claudia Felser and Kamran Behnia.
Quantum Materials, 3, 64 (2018)

2022年度 物理学科大輪講 第1回

日時：10月19日(水)13時30分から
場所：西2号館502教室+オンライン(zoom)
(変更になりました. ご注意ください)
時間：25分(発表20分、討論5分)

前半(13:30-15:15)

座長：渡邊

1. 2019041003 (田中研究室) 13:35-14:00
Chiral Electromagnetic Fields Generated by Arrays of Nanoslits,
E. Hendry, R. V. Mikhaylovskiy, L. D. Barron, M. Kadodwala, and T. J. Davis,
Nano Lett **12**, 3640-3644 (2012).
2. 2019041012 (田中研究室) 14:00-14:25
A Self-Organized Anisotropic Liquid-Crystal Plasmonic Metamaterial,
José Dintinger, Bai-Jia Tang, Xianbing Zeng, Feng Liu, Tobias Kienzler, Georg H.
Mehl, Goran Ungar, Carsten Rockstuhl, Toralf Scharf,
Advanced Materials, **25**, 1999-2004 (2013)(11月9日発表へ変更)
3. 2019041017 (田中研究室) 14:25-14:50
Hybrid Metamaterial Absorber Platform for Sensing of CO₂ Gas at Mid-IR,
Dihan Hasan and Chengkuo Lee,
ADVANCED SCIENCE. **5**, 1700581 (2018).
4. 2019041035 (田中研究室) 14:50-15:15
Full Color Generation Using Silver Tandem Nanodisks,
Hao Wang, Xiaolong Wang, Chen Yan, Hua Zhao, Jingwen Zhang, Christein
Santschi, and Oliver J. F. Martin,
ACS Nano, **11**, 4419-4427 (2017)

後半 (15:25–16:40)

座長：井田

5. 2019041002 (平野研究室) 15:25–15:50
Photonic integrated quantum secure communication system,
Taofiq K. Paraso, Thomas Roger, Davide G. Marangon, Innocenzo De Marco,
Mirko Sanzaro, Robert I. Woodward, James F. Dynes, Zhiliang Yuan and Andrew
J. Shields,
Nature Photonics. **15**, 850–856 (2021).
6. 2019041027 (松本研究室) 15:50–16:15
The isolation of test masses for gravitational wave antennae
V.B.Braginsky, V.P.Mitrofanov and O.A.Okhrimenko
Physics Letters A 175 (1993) 82-84
7. 2019041015 (渡邊研究室) 16:15–16:40
Damage caused by magnetic pressure at high trapped field in quasi-permanent
magnets composed of melt-textured Y-Ba-Cu-O superconductor
Y. Ren, R. Weinstein, J. Liu, R.P. Sawh, and C. Foster
Physica C **251** (1995) 15-26

2022年度 物理学科大輪講 第2回

日時：10月26日(水)13時30分から
場所：西2号館502教室+オンライン(zoom)
(変更になりました. ご注意ください)
時間：25分(発表20分、討論5分)

前半(13:30-15:10)

座長：町田

1. 2018041034 (荒川研究室) 13:30-13:55
Industrial surfaces behaviour related to the adsorption and desorption of hydrogen at cryogenic temperature
G. Moulard, B. Jenninger, Y. Saito
Vacuum **60** (2001) 43-50.
2. 2019041016 (平野研究室) 13:55-14:20
Quantum Key Distribution over 658 km Fiber with Distributed Vibration Sensing
Jiu-Peng Chen, Chi Zhang, Yang Liu, Cong Jiang, Dong-Feng Zhao, Wei-Jun Zhang, Fa-Xi Chen, Hao Li, Li-Xing You, Zhen Wang, Yang Chen, Xiang-Bin Wang, Qiang Zhang, and Jian-Wei Pan
Physical Review Letters **128**, 180502 (2022)
3. 2019041037 (平野研究室) 14:20-14:45
Optical injection locking based local oscillator regeneration for continuous variable quantum key distribution
Zikang Su, Dajian Cai, Hao Jiang, Jintao Wang, Dawei wang, Xiaojie Guo, and Zhaohui Li,
Optics Letters, **47**, 1287 (2022).
4. 2019041001 (松本研究室) 14:45-15:10
Passive laser power stabilization via an optical spring
T.Cullen, S.Aronson, R. Pagano, M.T.Nery, H.Cain, J.Cripe, G.D. Cole, S.Sharifi, N.Aggarwal, B.Willke, and T.Corbitt
Optics letters, vol.47, issue11, pp2746 ~ pp2749, 2022

後半 (15:20–16:35)

座長：田崎

5. 2018041028 (西坂研究室) 15:20–15:45
Twirling Motion of Actin Filaments in Gliding Assays with Myosin Motors
Andrej Vilfan (J.Stefan Institute, Ljubljana, Slovenia)
Biophysical Journal, Volume 97, 1130-1137, August 2009
6. 2019041020 (西坂研究室) 15:45–16:10
Defocused orientation and position imaging (DOPI) of myosin
Erdal Toprak, Joerg Enderlein, Sheyum Syed, Sean A. McKinney , Rolfe G. Petschek, Taekjip Ha, Yale E. Goldman, and Paul R. Selvin,
PNAS, 103(No.17), 64956499 (2006)
7. 2019041019 (町田研究室) 16:10–16:35
Large phonon thermal Hall conductivity in the antiferromagnetic insulator Cu_3TeO_6
Lu Chena, Marie-Eve Boulanger, Zhi-Cheng Wang , Fazel Tafti , and Louis Taillefer
PNAS **119**, e2208016119 (2022).

2022年度 物理学科大輪講 第3回

日時：11月2日(水)13時30分から
場所：西2号館502教室+オンライン(zoom)
(変更になりました. ご注意ください)
時間：25分(発表20分、討論5分)

前半(13:30-15:10)

座長：西坂

1. 2019041005 (荒川研究室) 13:30-13:55
Dependence of the effective rate constants for the hydrogenation of CO on the temperature and composition of the surface,
N. Watanabe, A. Nagaoka, H. Hidaka, T. Shiraki, T. Chigai, A. Kouchi,
Planetary and Space Science, **54**, 1107-1114 (2006)
2. 2019041021 (理論研究室) 13:55-14:20
Crystallization and vitrification of electrons in a glass-forming charge liquid,
S. Sasaki, K. Hashimoto, R. Kobayashi, K. Itoh, S. Iguchi, Y. Nishio, Y. Ikemoto,
T. Moriwaki, N. Yoneyama, M. Watanabe, A. Ueda, H. Mori, K. Kobayashi, R.
Kumai, Y. Murakami, J. Muller, T. Sasaki,
Science 357, 1381-1385 (2017)
3. 2019041030 (町田研究室) 14:20-14:45
Thermal conductivity measurement under hydrostatic pressure using the 3ω method
Feng Chen, Janson Shulman, Yuyi Xue, C.W. Chu
REVIEW OF SCIENTIFIC INSTRUMENTS, 75, 11, (2004)
4. 2019041031 (町田研究室) 14:45-15:10
Highly tunable topological system based on PbTe-SnTe binary alloy
Cheng-Long Zhang, Tian Liang, Naoki Ogawa, Yoshio Kaneko, Markus Kriener, Taro Nakajima, Yasujiro Taguchi, and Yoshinori Tokura
Phys. Rev. Materials 4, 091201(R) Published 22 September 2020

後半 (15:20–16:35)

座長：宇田川

5. 2018041021 (松本研究室) 15:20–15:45
Measurement of the Earth tides with a MEMS gravimeter
R.P.Middlemiss, A.Samarelli, D.J.Paul, J.Hough, S.Rowan G.D.Hammond
NATURE, 531, 614, 2016
6. 2019041013 (渡邊研究室) 15:45–16:10
High-accuracy differential thermal analysis: A tool for calorimetric investigations
on small high-temperature-superconductor specimens
A. Schilling and O. Jeandupeux
PHYSICAL REVIEW B VOLUME 52 (1995) 9714-9723
7. 2019041033 (渡邊研究室) 16:10–16:35
Mode-selective thermal radiation from a microsphere as a probe of optical properties
of high-temperature materials,
R. Morino, H. Tajima, H. Sonoda, H. Kobayashi, R. Kanamoto, H. Odashima, and
M. Tachikawa,
PHYSICAL REVIEW A 95, 063814(2017)

2022年度 物理学科大輪講 第4回

日時：11月9日(水)13時30分から
場所：西2号館502教室+オンライン(zoom)
(変更になりました. ご注意ください)
時間：25分(発表20分、討論5分)

前半(13:30-15:10)

座長：町田

1. 2019041006 (荒川研究室) 13:30-13:55
Measurements of Ortho-to-para Nuclear Spin Conversion of H_2 on Low-temperature Carbonaceous Grain Analogs: Diamond-like Carbon and Graphite,
Masashi Tsuge, Akira Kouchi, and Naoki Watanabe,
THE ASTROPHYSICAL JOURNAL, 923:71 (8pp), 2021
2. 2019041047 (理論研究室) 13:55-14:20
Quantum Entanglement,
Bei Zeng, Xie Chen, Duan-Lu Zhou, Xiao-Gang Wen,
Quantum Information Meets Quantum Matter : From Quantum Entanglement to Topological Phases of Many-Body Systems (Springer,2019) Chapter 1,p.3-35
3. 2019041025 (理論研究室) 14:20-14:45
QUANTUM DYNAMICS OF A MASSLESS RELATIVISTIC STRING
P. GODDARD J. GOLDSTONE
Nuclear Physics (North-Holland Publishing Company,1973), p.109-135
4. 2019041022 (平野研究室) 14:45-15:10
Sub-Gbps key rate four-state continuous-variable quantum key distribution within metropolitan area.
Heng Wang, Yang Li, Yaodi Pi, Yan Pan, Yun Shao, Li Ma, Yichen Zhang, Jie Yang, Tao Zhang, Wei Huang and Bingjie Xu.
Communications Physics, **5**, 162 (2022)

後半 (15:20–17:00)

座長：宇田川

5. 2019041036 (平野研究室) 15:20–15:45
Observation of Atom Number Fluctuations in a Bose-Einstein Condensate,
M. A. Kristensen, M. B. Christensen, M. Gajdacz, M. Iglicki, K. Pawowski, C.
Klempt, J. F. Sherson, K. Rzewski, A. J. Hilliard, and J. J. Arlt,
PHYSICAL REVIEW LETTERS **122**, 163601 (2019)
6. 2018041036 (西坂研究室) 15:45–16:10
Learning the rules of collective cell migration using deep attention networks
Julienne LaChance, Kevin Suh, Jens Clausen, Daniel J Cohen
PLoS Comput Biol 18(4):e1009293 (2022)
7. 2018041048 (西坂研究室) 16:10–16:35
Chlamydomonas Swims with Two “ Gears ” in a Eukaryotic Version of Run-and-Tumble Locomotion
Marco Polin, Idan Tuval, Knut Drescher, J.P. Gollub, Raymond E. Goldstein
Science , 325, 487–490, (2009)
8. 2019041012 (田中研究室) 16:35–17:00
A Self-Organized Anisotropic Liquid-Crystal Plasmonic Metamaterial,
José Dintinger, Bai-Jia Tang, Xianbing Zeng, Feng Liu, Tobias Kienzler, Georg H.
Mehl, Goran Ungar, Carsten Rockstuhl, Toralf Scharf,
Advanced Materials, **25**, 1999–2004 (2013)

2022年度 物理学科大輪講 第5回

日時：11月16日(水)13時30分から
場所：西2号館502教室+オンライン(zoom)
(変更になりました. ご注意ください)
時間：25分(発表20分、討論5分)

前半(13:30-15:10)

座長：松本

1. 2017041047 (理論研究室) 13:30-13:55
Continuous Population Models for Single Species,
J.D. Murray,
Mathematical Biology I. An Introduction Third Edition (Springer-Verlag, 2002)
Chapter 1, p.1-40.
2. 2019041014 (理論研究室) 13:55-14:20
Snow Equi-Temperature Metamorphism Described by a Phase-Field Model Applicable on Micro-Tomographic Images: Prediction of Microstructural and Transport Properties,
L. Bouvet, N. Calonne, F. Flin, and C. Geindreau,
Journal of Advances in Modeling Earth Systems, **14**(9), (2022)
3. 2018041003 (理論研究室) 14:20-14:45
The Quantum Fourier Transform
Michael A. Nielsen and Isaac L. Chuang,
Quantum Computation and Quantum Information (CAMBRIDGE, 2010), Section 5.1, pp.217-221.
4. 2019041032 (町田研究室) 14:45-15:10
Layer-Polarized Anomalous Hall Effect in Valleytronic van der Waals Bilayers
Ting Zhang, Xilong Xu, Baibiao Huang, Ying Dai, Liangzhi Kou, Yandong Ma
arXiv:2206.11504v1, (2022)

後半 (15:20-16:35)

座長：平野

5. 2019041040 (町田研究室) 15:20-15:45
Giant anomalous Nernst signal in the antiferromagnet YbMnBi_2
Yu Pan, Congcong Le, Bin He¹, Sarah J. Watzman, Mengyu Yao, Johannes Gooth,
Joseph P. Heremans, Yan Sun and Claudia Felser
Nature Materials 21, 203-209 (2022)
6. 2019041024 (渡邊研究室) 15:45-16:10
Dust transport in photoelectron layers and the formation of dust ponds on Eros
Joshua E. Colwell, Amanda A.S. Gulbis, Mihly Hornyi, and Scott Robertson
Icarus **175**, 159-169 (2005)
7. 2019041042 (渡邊研究室) 16:10-16:35
Size-Dependent Heating of Magnetic Iron Oxide Nanoparticles
Sheng Tong, Christopher A. Quinto, Linlin Zhang, Priya Mohindra, and Gang Bao
ACS Nano **11**, 6808 - 6816 (2017)