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学 歴

2003年3月 東京理科大学理工学部物理学科 修了
2005年3月 東京大学大学院新領域創成科学研究科物質系専攻 修士課程 修了
2008年3月 京都大学大学院理学研究科物理学・宇宙物理学専攻
博士後期課程 修了

学 位

博士(理学) 2008年3月 京都大学
「エキゾチック超伝導体の熱輸送特性による研究」

職 歴

2005年4月～2008年3月
京都大学大学院理学研究科 日本学術振興会特別研究員(DC1)
2008年4月～2010年3月
東北大学金属材料研究所 低温電子物性学研究部門 助教
2010年4月～現在
東京大学大学院工学系研究科 量子相エレクトロニクス研究センター
岩佐研究室 助教

受賞歴

2010年2月 井上科学振興財団 第27回(2010年度)井上研究奨励賞
2011年2月 JPSJ Papers of Editor's choice
“Electric-Field-Induced Superconductivity Detected by Magnetization Measurements of an Electric-Double-Layer Capacitor”
Y. Kasahara, T. Nishijima, T. Sato, Y. Takeuchi, J. T. Ye, H. T. Yuan, H. Shimotani, and Y. Iwasa
[J. Phys. Soc. Jpn. 80 \(2011\) 023708](http://jpsj.jp/doi/10.1143/JPSJ.80(2011)023708)

研究内容

異方の超伝導、界面電子系、物質機能開発、凝縮系物理、物質科学

原著論文 (51 件)

1. “Quantum-limit linkage of ‘strange’ and conventional metal states of high- T_c superconductors”
L. Krusin-Elbaum, T. Shibauchi, **Y. Kasahara**, R. Okazaki, Y. Matsuda, R. D. McDonald, C. H. Mielke, M. Hasegawa
[Physica C 493, 15 \(2013\)](#)
2. “Interface transport properties in ion-gated nano-sheets”
J. T. Ye, Y. J. Zhang, **Y. Kasahara**, and Y. Iwasa
[European Physical Journal Special Topics 222, 1185 \(2013\)](#)
3. “Retraction: Bulk superconductivity and fully gapped superconducting state in Ba-doped phenanthrene [Phys. Rev. B 85, 214520 (2012)]”
Y. Kasahara, Y. Takeuchi, Y. Iwasa
[Physical Review B 87, 179902\(E\) \(2013\)](#)
4. “Correlation-Enhanced Effective Mass of Two-Dimensional Electrons in Mg_xZn_{1-x}/ZnO Heterostructures”
Y. Kasahara, Y. Oshima, J. Falson, Y. Kozuka, A. Tsukazaki, M. Kawasaki, Y. Iwasa
[Physical Review Letters 109, 246401 \(2012\)](#)
5. “Bulk superconductivity and fully gapped superconducting state in Ba-doped phenanthrene”
Y. Kasahara, Y. Takeuchi, Y. Iwasa
[Physical Review B 85, 214520 \(2012\)](#)
6. “Gate-induced Superconductivity in Layered-Material-Based Electric Double Layer Transistors”
J. T. Ye, Y. J. Zhang, Y. Matsushashi, M. F. Craciun, S. Russo, **Y. Kasahara**, A. F. Morpurgo, Y. Iwasa
[Journal of Physics: Conference Series 400, 022139 \(2012\)](#)
7. “Electrostatically and electrochemically induced superconducting state realized in electrochemical cells”
Y. Kasahara, T. Nishijima, T. Sato, Y. Takeuchi, J. T. Ye, H. T. Yuan, H. Shimotani, Y. Iwasa
[Journal of Physics: Conference Series 400, 022049 \(2012\)](#)
8. “Electric-Field-Induced Superconductivity Detected by Magnetization Measurements of an Electric-Double-Layer Capacitor”
Y. Kasahara, T. Nishijima, T. Sato, Y. Takeuchi, J. T. Ye, H. T. Yuan, H. Shimotani, Y. Iwasa
[Journal of the Physical Society of Japan 80, 023708 \(2011\)](#)
[JPSJ Papers of Editor’s Choice, February 2011]
[JPSJ News and Comments 8 \(2011\) 03](#)
9. “Doping Variation of Optical Properties in ZrNCl Superconductors”
T. Takano, **Y. Kasahara**, T. Oguchi, I. Hase, Y. Taguchi, Y. Iwasa
[Journal of the Physical Society of Japan 80, 023702 \(2011\)](#)
10. “Evolution of gap anisotropy with doping carriers in Li_xZrNCl superconductors”
Y. Kasahara, T. Kishiume, T. Takano, K. Kobayashi, E. Matsuoka, H. Onodera, K. Kuroki, Y. Taguchi, Y. Iwasa
[Physica C 470, S732 \(2010\)](#)
11. “Unconventional superconductivity in Li-intercalated layered nitride Li_xZrNCl ”
M. Hiraishi, R. Kadono, M. Miyazaki, S. Takeshita, A. Koda, Y. Taguchi, **Y. Kasahara**, T. Takano, T. Kishiume, Y. Iwasa
[Physica C 470, S723 \(2010\)](#)
12. “Gate induced superconductivity in layered material based electronic double layer field effect transistors”
J. T. Ye, S. Inoue, K. Kobayashi, **Y. Kasahara**, H. T. Yuan, H. Shimotani, Y. Iwasa
[Physica C 470, S682 \(2010\)](#)
13. “ ^{15}N NMR studies of layered nitride superconductor Li_xZrNCl ”
H. Tou, S. Oshiro, H. Kotegawa, Y. Taguchi, Y. Kishiume, **Y. Kasahara**, Y. Iwasa
[Physica C 470, S658 \(2010\)](#)

14. “Superconductivity in layered nitride with small carrier density”
Y. Taguchi, **Y. Kasahara**, T. Kishiume, T. Takano, K. Kobayashi, E. Matsuoka, H. Onodera, K. Kuroki, Y. Iwasa
[Physica C 470, S598 \(2010\)](#)
15. “Exotic superconducting state embedded in the hidden order state of URu₂Si₂”
Y. Matsuda, R. Okazaki, **Y. Kasahara**, H. Shishido, T. Shibauchi, Y. Haga, T. D. Matsuda, Y. Onuki
[Physica C 470, 1013 \(2010\)](#)
16. “Interlayer magnetotransport in the overdoped cuprate Tl₂Ba₂CuO_{6+x}: Quantum critical point and its downslide in a applied magnetic field”
L. Krusin-Elbaum, T. Shibauchi, **Y. Kasahara**, R. Okazaki, Y. Matsuda, R. D. McDonald, C. H. Mielke, M. Hasegawa
[Physical Review B 82, 144530 \(2010\)](#)
17. “Superconductivity in molecule-intercalated Li_xZrNCl with variable interlayer spacing”
Y. Kasahara, T. Kishiume, K. Kobayashi, Y. Taguchi, Y. Iwasa
[Physical Review B 82, 054504 \(2010\)](#)
18. “Liquid-gated superconductivity on an atomically flat film”
J. T. Ye, S. Inoue, K. Kobayashi, **Y. Kasahara**, H. T. Yuan, H. Shimotani, Y. Iwasa
[Nature Materials 9, 125 \(2010\)](#)
19. “Anisotropic superconducting order parameter in Li-intercalated layered superconductor Li_xZrNCl”
M. Hiraishi, R. Kadono, M. Miyazaki, S. Takeshita, Y. Taguchi, **Y. Kasahara**, T. Takano, T. Kishiume, Y. Iwasa
[Physical Review B 81, 014525 \(2010\)](#)
20. “Enhancement of Pairing Interaction and Magnetic Fluctuations toward a Band Insulator in an Electron-Doped Li_xZrNCl Superconductor”
Y. Kasahara, T. Kishiume, T. Takano, K. Kobayashi, E. Matsuoka, H. Onodera, K. Kuroki, Y. Taguchi, Y. Iwasa
[Physical Review Letters 103, 077004 \(2009\)](#)
21. “Superconducting gap structure of heavy-Fermion compound URu₂Si₂ determined by angle-resolved thermal conductivity”,
Y. Kasahara, H. Shishido, T. Shibauchi, Y. Haga, T. D. Matsuda, Y. Onuki, Y. Matsuda
[New Journal of Physics 11, 055061 \(2009\)](#)
22. “Thermal-transport measurements in a quantum spin-liquid state of the frustrated triangular magnet □-(BEDT-TTF)₂Cu₂(CN)₃”
M. Yamashita, N. Nakata, **Y. Kasahara**, T. Sasaki, N. Yoneyama, N. Kobayashi, S. Fujioto, T. Shibauchi, Y. Matsuda
[Nature Physics 5, 44 \(2009\)](#)
23. “Pinning down the pairing symmetry of heavy-fermion compound CeIrIn₅”
Y. Kasahara, T. Iwasawa, Y. Shimizu, H. Shishido, T. Shibauchi, I. Vekhter, Y. Matsuda
[Journal of Physics: Conference Series 150, 052097 \(2009\)](#)
24. “Gap structure and exotic superconducting state of URu₂Si₂”
Y. Kasahara, T. Iwasawa, H. Shishido, T. Shibauchi, K. Behnia, T. D. Matsuda, Y. Haga, Y. Onuki, M. Sgrist, Y. Matsuda
[Journal of Physics: Conference Series 150, 052098 \(2009\)](#)
25. “Specific heat study of electron-doped ZrNCl superconductors”
Y. Kasahara, T. Kishiume, T. Takano, Y. Taguchi, Y. Iwasa
[Journal of Physics: Conference Series 150, 052099 \(2009\)](#)
26. “Effect of organic-molecule co-intercalation on T_c in Li_xHfNCl superconductor”
T. Takano, T. Kishiume, **Y. Kasahara**, Y. Taguchi, Y. Iwasa
[Journal of Physics: Conference Series 150, 052258 \(2009\)](#)
27. “Evidence for field-induced quantum critical route to a Fermi liquid in overdoped Tl₂Ba₂CuO_{6+x}”
T. Shibauchi, L. Krusin-Elbaum, M. Hasegawa, **Y. Kasahara**, R. Okazaki, Y. Matsuda
[Journal of Physics: Conference Series 150, 052234 \(2009\)](#)

28. "Vortex lattice melting in the ultraclean heavy-fermion superconductor URu₂Si₂"
R. Okazaki, Y. Kasahara, H. Shishido, M. Konczykowski, K. Behnia, Y. Haga, T. D. Matsuda, Y. Onuki, T. Shibauchi, Y. Matsuda
[Journal of Physics: Conference Series 150, 052198 \(2009\)](#)
29. "Exotic superconducting state embedded in the hidden order of URu₂Si₂"
Y. Kasahara, T. Iwasawa, H. Shishido, T. Shibauchi, K. Behnia, Y. Haga, T. D. Matsuda, Y. Onuki, M. Sigrist, Y. Matsuda
[Journal of Physics and Chemistry of Solids 69, 3187 \(2008\)](#)
30. "Fully gapped superconductivity and strong electron correlations in the β -pyrochlore KO₂O₆"
K. Kasahara, Y. Shimono, T. Kato, K. Hashimoto, T. Shibauchi, Y. Matsuda, S. Yonezawa, Y. Muraoka, J. Yamaura, Y. Nagao, Z. Hiroi
[Journal of Physics and Chemistry of Solids 69, 3228 \(2008\)](#)
31. "Vortex lattice melting in the heavy-fermion superconductor URu₂Si₂"
R. Okazaki, **Y. Kasahara**, H. Shishido, M. Konczykowski, K. Behnia, Y. Haga, T.D. Matsuda, Y. Onuki, T. Shibauchi, Y. Matsuda
[Physica C 468, 1258 \(2008\)](#)
32. "Thermal conductivity evidence for a $d_{x^2-y^2}$ pairing symmetry in the heavy-fermion CeIrIn₅ superconductor"
Y. Kasahara, T. Iwasawa, Y. Shimizu, H. Shishido, T. Shibauchi, I. Vekhter, Y. Matsuda
[Physical Review Letters 100, 207003 \(2008\)](#)
33. "Field-induced quantum critical route to a Fermi liquid in high-temperature superconductors"
T. Shibauchi, L. Krusin-Elbaum, M. Hasegawa, **Y. Kasahara**, R. Okazaki, Y. Matsuda
[Proceedings of the National Academy of Science of the United States of America 105, 7120 \(2008\)](#)
34. "Full-gap superconductivity with strong electron correlations in the β -pyrochlore KO₂O₆"
K. Kasahara, Y. Shimono, T. Kato, K. Hashimoto, T. Shibauchi, Y. Matsuda, S. Yonezawa, Y. Muraoka, J. Yamaura, Y. Nagao, Z. Hiroi
[Physica B 403, 1068 \(2008\)](#)
35. "Flux line lattice melting and the formation of a coherent quasiparticle Bloch state in the ultraclean URu₂Si₂ superconductor"
R. Okazaki, **Y. Kasahara**, H. Shishido, M. Konczykowski, K. Behnia Y. Haga, T. D. Matsuda, Y. Onuki, T. Shibauchi, Y. Matsuda
[Physical Review Letters 100, 037004 \(2008\)](#)
36. "Exotic superconducting properties in the electron-hole-compensated heavy-fermion "Semimetal" URu₂Si₂"
Y. Kasahara, T. Iwasawa, H. Shishido, T. Shibauchi, K. Behnia, Y. Haga, T. D. Matsuda, Y. Onuki, T. Shibauchi, Y. Matsuda
[Physical Review Letters 99, 116402 \(2007\)](#)
37. "Striking similarities between HTSC and quasi-2D HF CeIrIn₅"
K. Izawa, Y. Nakajima, **Y. Kasahara**, R. Bel, K. Behnia, H. Shishido, R. Settai, Y. Onuki, H. Kontani, Y. Matsuda
[Physica C 460-462, 145 \(2007\)](#)
38. "Effects of rattling phonons on the dynamics of quasiparticle excitation in the β -pyrochlore KO₂O₆ superconductor"
Y. Shimono, T. Shibauchi, **Y. Kasahara**, T. Kato, K. Hashimoto, Y. Matsuda, J. Yamaura, Y. Nagao, Z. Hiroi
[Physical Review Letters 98, 257004 \(2007\)](#)
39. "Anomalous quasiparticle transport and superclean superconducting state of CeCoIn₅"
Y. Kasahara, Y. Nakajima, K. Izawa, Y. Matsuda, K. Behnia, H. Shishido, R. Settai, Y. Onuki
[Journal of Magnetism and Magnetic Materials 310, 569 \(2007\)](#)
40. "Uncommonly high unsaturated upper critical field in the pyrochlore superconductor KO₂O₆ below enhanced paramagnetic limit"
T. Shibauchi, L. Krusin-Elbaum, **Y. Kasahara**, Y. Shimono, Y. Matsuda, R. D. McDonald, C. H. Mielke, S. Yonezawa, Z. Hiroi, M. Arai, T. Kita, G. Blatter, M. Sigrist

- [Physical Review B 74, 220506\(R\) \(2006\)](#)
41. “Thermal Conductivity of the Pyrochlore Superconductor KOs_2O_6 : Strong Electron Correlations and Fully Gapped Superconductivity”
Y. Kasahara, Y. Shimono, T. Shibauchi, Y. Matsuda, S. Yonezawa, Y. Muraoka, Z. Hiroi
[Physical Review Letters 96, 247004 \(2006\)](#)
 42. “Low-temperature thermal conductivity of noncentrosymmetric CePt_3Si ”
K. Izawa, **Y. Kasahara**, Y. Matsuda, K. Behnia, T. Yasuda, R. Settai, Y. Onuki
[Physica B 378-380, 361 \(2006\)](#)
 43. “Unusual upper critical field in the pyrochlore KOs_2O_6 ”
T. Shibauchi, L. Krusin-Elbaum, Y. Kasahara, Y. Shimono, Y. Matsuda, R. D. McDonald, C. H. Mielke, S. Yonezawa, Z. Hiroi, M. Arai, T. Kita, G. Blatter, M. Sigrist
[Journal of Physics: Conference Series 51, 295 \(2006\)](#)
 44. “Anomalous quasiparticle transport in the superconducting state of CeCoIn_5 ”
Y. Kasahara, Y. Nakajima, K. Izawa, Y. Matsuda, K. Behnia, H. Shishido, R. Settai, Y. Onuki
[Physical Review B 72, 214515 \(2005\)](#)
 45. “Superconducting gap structure of antiferromagnetic heavy-fermion superconductor UPd_2Al_3 studied by thermal conductivity measurements with rotating magnetic field”
T. Watanabe, K. Izawa, **Y. Kasahara**, Y. Haga, Y. Onuki, P. Thalmeier, K. Maki, Y. Matsuda
[Physica C 426-431, 234 \(2005\)](#)
 46. “New high field state of flux line lattice in CeCoIn_5 ”
K. Kasahara, T. Watanabe, K. Izawa, T. Sakakibara, C. J. van der Beek, T. Hanaguri, M. Nohara, H. Takagi, H. Shishido, R. Settai, Y. Onuki, Y. Matsuda
[Physica C 426-431, 36 \(2005\)](#)
 47. “Multiple superconducting phases in heavy fermion superconductors”
Y. Matsuda, K. Izawa, T. Watanabe, **Y. Kasahara**, Y. Nakajima, T. Sakakibara, C. J. van der Beek, M. Nohara, T. Hanaguri, H. Takagi, J. Goryo, K. Maki, P. Thalmeier, S. Osaki, H. Sugawara, H. Sato, H. Shishido, R. Settai, Y. Onuki
[Journal of Physics and Chemistry of Solids 66, 1365 \(2005\)](#)
 48. “Line nodes in the superconducting gap function of noncentrosymmetric CePt_3Si ”
K. Izawa, **Y. Kasahara**, Y. Matsuda, K. Behnia, T. Yasuda, R. Settai, Y. Onuki
[Physical Review Letters 94, 197002 \(2005\)](#)
 49. “Thermal transport in the hidden-order state of URu_2Si_2 ”
K. Behnia, R. Bel, **Y. Kasahara**, Y. Nakajima, H. Jin, H. Aubin, K. Izawa, Y. Matsuda, J. Flouquet, Y. Haga, Y. Onuki P. Lejay
[Physical Review Letters 94, 156405 \(2005\)](#)
 50. “Superconducting gap function in antiferromagnetic heavy-fermion UPd_2Al_3 probed by angle-resolved magnetothermal transport measurements”
T. Watanabe, K. Izawa, **Y. Kasahara**, Y. Haga, Y. Onuki, P. Thalmeier, K. Maki, Y. Matsuda
[Physical Review B 70, 184502 \(2004\)](#)
 51. “High-field state of the flux-line lattice in the unconventional superconductor CeCoIn_5 ”
T. Watanabe, **Y. Kasahara**, K. Izawa, T. Sakakibara, Y. Matsuda, C. J. van der Beek, T. Hanaguri, H. Shishido, R. Settai, Y. Onuki
[Physical Review B 70, 020506 \(2004\)](#)

著書・解説（3件）

1. “層状窒化物の電界誘起超伝導”
岩佐義宏、叶 劍挺、袁 洪涛、[笠原裕一](#)、下谷秀和
固体物理、第 45 卷 2 号、91-99 頁、2010 年
2. “隠れた秩序下で起こる重い電子の奇妙な超伝導”
[笠原裕一](#)、宍戸寛明、芝内孝禎、松田祐司
3. [日本物理学会誌、第63巻、446-450頁、2008年](#)
“重い電子系URu₂Si₂の隠れた秩序状態におけるエキゾチック超伝導”
[笠原裕一](#)
[京都大学低温物質科学研究センター誌、第12巻、21-27頁、2008年](#)

新聞報道（1件）

1. “大容量キャパシタから生じる電界誘起超伝導”
科学新聞、2011 年 3 月 18 日、第 3332 号

招待講演（7件）

1. “C₆₀化合物における超伝導—モット絶縁体転移と上部臨界磁場”
東京大学物性研究所 短期研究会、「極限状態磁場科学—場、物質、プローブのリンクから融合へ」、2013年11月1日、東京大学物性研究所
2. “Specific Heat Study of A₃C₆₀ Fullerides near the Mott Transition”
Workshop on Superconductivity and Magnetism associated with Geometry and Dimensionality from Organics to Inorganics (SuMO2013), May 16, 2013, Sendai, Japan
3. “Materials science and phase control using electric double layer transistors”
The 6th International Workshop on Advanced Materials Science and Nanotechnology (IWAMSN 2012), November 1, 2012, Halong city, Vietnam
4. “Magnetic detection of field-induced superconductivity”
EDLT Tokyo: an International Workshop on Electric Double Layer Transistors, September 10, 2012, Tokyo, Japan
5. “Superconductivity in electron doped layered nitrides”
物性理論研究室セミナー、2008年3月9日、東北大学大学院理学研究科
6. “重い電子系超伝導体URu₂Si₂における特異な準粒子熱輸送現象”
凝縮系理論グループ セミナー、2007年1月31日、京都大学大学院理学研究科
7. “CeCoIn₅の異常な準粒子輸送現象”
凝縮系理論グループ セミナー、2005年7月20日、京都大学大学院理学研究科