

誌 上 発 表 Publications

[雑誌]

(原著論文) *印は査読制度がある論文誌

- Yoshioka H., Tsuchiizu M., Otsuka Y., and Seo H.: “Finite-temperature properties across the charge ordering transition: combined bosonization, renormalization group, and numerical methods”, *J. Phys. Soc. Jpn.* **79**, No. 9, pp. 094714-1–094714-9 (2010). *
- Yamada Y., Tanaka Y., and Kawakami N.: “Enhanced Andreev Tunneling via the Kondo resonance in a quantum dot at finite bias”, *J. Phys. Soc. Jpn.* **79**, 043705-1–043705-4 (2010). *
- Tsuchiizu M., Omori Y., Suzumura Y., Bonnet M., Robert V., Ishibashi S., and Seo H.: “Multi-orbital molecular compound (TTM-TTP)_{I3}: effective model and fragment decomposition”, *J. Phys. Soc. Jpn.* **80**, No. 1, pp. 013703-1–013703-4 (2010). *
- Ryu S., Mudry C., Obuse H., and Furusaki A.: “The Z_2 network model for the quantum spin Hall effect: two-dimensional Dirac fermions, topological quantum numbers and corner multifractality”, *New J. Phys.* **12**, No. 6, pp. 065005-1–065005-30 (2010). *
- Shindou R., Nakai R., and Murakami S.: “Disordered topological quantum critical points in three-dimensional systems”, *New J. Phys.* **12**, No. 6, pp. 065008-1–065008-20 (2010). *
- Ryu S., Schnyder A. P., Furusaki A., and Ludwig A. W.: “Topological insulators and superconductors: tenfold way and dimensional hierarchy”, *New J. Phys.* **12**, No. 6, pp. 065010-1–065010-60 (2010). *
- Ryu S., Mudry C., Ludwig A. W., and Furusaki A.: “High-gradient operators in perturbed Wess-Zumino-Witten field theories in two dimensions”, *Nucl. Phys. B* **839**, 341–376 (2010). *
- Takayoshi S., Sato M., and Furukawa S.: “Spontaneous population imbalance in two-component Bose and Fermi gases”, *Phys. Rev. A* **81**, 053606-1–053606-7 (2010). *
- Furukawa S., Sato M., and Furusaki A.: “Unconventional Néel and dimer orders in a spin- $\frac{1}{2}$ frustrated ferromagnetic chain with easy-plane anisotropy”, *Phys. Rev. B* **81**, 094430-1–094430-9 (2010). *
- Deacon R. S., Tanaka Y., Oiwa A., Sakano R., Yoshida K., Shibata K., Hirakawa K., and Tarucha S.: “Kondo-enhanced Andreev transport in single self-assembled InAs quantum dots contacted with normal and superconducting leads”, *Phys. Rev. B* **81**, 121308-1–121308-4 (2010). *
- Santos L., Neupert T., Chamon C., and Mudry C.: “Superconductivity on the surface of topological insulators and in two-dimensional noncentrosymmetric materials”, *Phys. Rev. B* **81**, 184502-1–184502-23 (2010). *
- Hikihara T., Momoi T., Furusaki A., and Kawamura H.: “Magnetic phase diagram of the spin-1/2 antiferromag-

netic zigzag ladder”, *Phys. Rev. B* **81**, 224433-1–224433-20 (2010). *

- Obuse H., Subramaniam A. R., Furusaki A., Gruzberg I. A., and Ludwig A. W.: “Conformal invariance, multifractality, and finite-size scaling at Anderson localization transitions in two dimensions”, *Phys. Rev. B* **82**, No. 3, pp. 035309-1–035309-12 (2010). *
- Akhanjee S.: “Quantum phase coherence in non-Markovian and reaction-diffusive transport”, *Phys. Rev. B* **82**, No. 5, pp. 054201-1–054201-5 (2010). *
- Shindou R., Furusaki A., and Nagaosa N.: “Quantum impurity spin in Majorana edge fermions”, *Phys. Rev. B* **82**, No. 18, pp. 180505-1–180505-4 (2010). *
- Akhanjee S.: “Quasiparticle excitations in Bose-Fermi mixtures”, *Phys. Rev. B* **82**, 075138-1–075138-8 (2010). *
- Onoda S. and Tanaka Y.: “Quantum melting of spin ice: emergent cooperative quadrupole and chirality”, *Phys. Rev. Lett.* **105**, No. 4, pp. 047201-1–047201-4 (2010). *
- Akhanjee S. and Rudnick J.: “Spherical spin-glass-Coulomb-gas duality solution beyond mean-field theory”, *Phys. Rev. Lett.* **105**, No. 4, pp. 047206-1–047206-4 (2010). *
- Neupert T., Onoda S., and Furusaki A.: “Chain of Majorana states from superconducting Dirac fermions at a magnetic domain wall”, *Phys. Rev. Lett.* **105**, 206404-1–206404-4 (2010). *
- Furukawa S., Sato M., and Onoda S.: “Chiral order and electromagnetic dynamics in one-dimensional multiferroic cuprates”, *Phys. Rev. Lett.* **105**, 257205-1–257205-4 (2010). *
- Seo H.: “Broken symmetry states in quasi-one-dimensional molecular conductors: competitions, co-existences, and frustration”, *Physica B* **405**, No. 11, pp. S126–S130 (2010). *
- Otsuka Y., Seo H., and Motome Y.: “Charge ordering due to π -d coupling in one-dimensional system”, *Physica B* **405**, No. 11, pp. S317–S320 (2010). *
- Sato M., Hikihara T., and Momoi T.: “Field and temperature dependence of NMR relaxation rate in the magnetic quadrupolar liquid phase of spin-1/2 frustrated ferromagnetic chains”, *Phys. Rev. B* **83**, No. 6, pp. 064405-1–064405-10 (2011). *

(総説)

- Nagaosa N., Sinova J., Onoda S., MacDonald A., and Ong N.: “Anomalous Hall effect”, *Rev. Mod. Phys.* **82**, No. 2, pp. 1539–1592 (2010).
- 笠真生, 古崎昭: “トポロジカル絶縁体と超伝導体の分類学”, *固体物理* **45**, No. 11, pp. 731–741 (2010).
- 桃井勉: “磁性体中のスピンの量子ネマティック状態”, *日本物理学会誌* **65**, No. 5, pp. 345–348 (2010).

□ 頭 発 表 Oral Presentations

(国際会議等)

- Otsuka Y., Seo H., and Motome Y.: “Numerical study of quarter-filled extended Hubbard chain coupled to Ising spins”, 8th International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets (ISCOM 2009), Niseko Town, Hokkaido Pref., Sept. (2009).
- Momoi T.: “Nematic spin liquids in frustrated magnets”, UK-Japan Meeting on Novel Quantum Phases in Oxide Materials, (University of Bristol), Bristol, UK, Feb. (2010).
- Momoi T., Sindzingre P., and Kubo K.: “Magnon pairing and crystallization in the triangular-lattice ring-exchange model”, International Symposium on Physics of New Quantum Phases in Superclean Materials (PSM2010), (University of Tokyo), Yokohama, Mar. (2010).
- Furusaki A.: “Kondo problem” on the edge of topological superconductor”, APCTP-KIAS Joint Workshop on Quantum Entanglement and Dynamics in Correlated Many-Body Systems, (Asia Pacific Center for Theoretical Physics/Korea Institute for Advanced Study), Pohang, Korea, May (2010).
- Furusaki A.: “Conformal invariance and boundary multifractality at Anderson transition in two dimensions”, Workshop on Localization Phenomena in Novel Phases of Condensed Matter, (The Abdus Salam International Center for Theoretical Physics), Trieste, Italy, May (2010).
- Furusaki A.: “Network model for quantum spin Hall effect”, Interactions, Disorder, and Topology in Quantum Hall Systems, (Max Planck Institute for the Physics of Complex Systems), Dresden, Germany, June (2010).
- Onoda S.: “Quantum melting of spin ice: Chiral spin liquid and ferroquadrupole order”, 2nd APCTP-IACS Joint Conference International Conference on Physics of Novel Oxide Materials, (Asia Pacific Center for Theoretical Physics), Pohang, Korea, July (2010).
- Takayoshi S. and Sato M.: “Determination of coefficients of bosonized dimer operators in spin-1/2 antiferromagnetic chains and their application”, International Conference on Frustrated Spin Systems, Cold Atoms, Nanomaterials, (Institute of Physics, Vietnam), Hanoi, Vietnam, July (2010).
- Sato M. and Todoroki N.: “Phase diagram and competing orders of stacked spatially anisotropic triangular Heisenberg antiferromagnets in magnetic field”, International Conference on Frustrated Spin Systems, Cold Atoms, Nanomaterials, (Institute of Physics, Vietnam), Hanoi, Vietnam, July (2010).
- Momoi T.: “Spin nematics in spin 1/2 frustrated magnets”, International Conference on Frustrated Spin Systems, Cold Atoms, Nanomaterials, (Institute of Physics, Vietnam), Hanoi, Vietnam, July (2010).
- Sato M., Furukawa S., and Furusaki A.: “Successive transitions between Neel and dimer phases in spin-1/2 ferromagnetic frustrated chain with easy-plane anisotropy”, International Conference on Frustrated Spin Systems, Cold Atoms, Nanomaterials, (Institute of Physics, Vietnam), Hanoi, Vietnam, July (2010).
- Otsuka Y., Seo H., and Motome Y.: “Numerical study of one-dimensional π - d coupled compound $\text{TPP}[\text{Fe}(\text{Pc})(\text{CN})_2]_2$ ”, International Conference on Science and Technology of Synthetic Metals (ICSM 2010), Kyoto, July (2010).
- Seo H., Ishibashi S., Fukuyama H., and Terakura K.: “Single-component molecular metals: p-d mixed multi-band system”, International Conference on Science and Technology of Synthetic Metals (ICSM 2010), Kyoto, July (2010).
- Otsuka Y., Seo H., and Motome Y.: “Numerical study of charge-order correlation in one-dimensional π - d coupled conductor $\text{TPP}[\text{Fe}(\text{Pc})(\text{CN})_2]_2$ ”, ISSP-MDF Joint International Workshop on Spin-related phenomena in organic materials, (Institute for Solid State Physics, University of Tokyo), Kashiwa, July (2010).
- Akhanjee S.: “Spherical spin-glass - Coulomb gas duality: solution beyond mean-field theory”, StatPhysHK: Complexity, Computation, Information, (Hong Kong Baptist University), Hong Kong, China, July (2010).
- Sato M., Hikihara T., Momoi T., and Furusaki A.: “NMR relaxation rate and dynamical structure factors in field-induced magnetic multi-polar phases of spin-1/2 frustrated ferromagnetic chains”, 5th International Conference on Highly Frustrated Magnetism (HFM 2010), (Johns Hopkins University), Baltimore, USA, Aug. (2010).
- Onoda S.: “Quantum fluctuations thaw the spin ice: emergent quadrupole moment, chirality, and spin dynamics”, 5th International Conference on Highly Frustrated Magnetism (HFM 2010), (Johns Hopkins University), Baltimore, USA, Aug. (2010).
- Momoi T., Kubo K., and Sindzingre P.: “Spin nematic order and magnetization plateau in a multiple-spin exchange model on the triangular lattice”, 5th International Conference on Highly Frustrated Magnetism (HFM 2010), (Johns Hopkins University), Baltimore, USA, Aug. (2010).
- Sato M. and Todoroki N.: “Stability of collinear and coplanar phases in stacked spatially-anisotropic triangular antiferromagnets under a magnetic field”, 5th International Conference on Highly Frustrated Magnetism (HFM 2010), (Johns Hopkins University), Baltimore, USA, Aug. (2010).
- Sato M., Furukawa S., and Furusaki A.: “Successive Neel and dimer orderings in spin-1/2 ferromagnetic frustrated chain with easy-plane anisotropy”, 5th International Conference on Highly Frustrated Magnetism (HFM 2010), (Johns Hopkins University), Baltimore, USA, Aug. (2010).
- Furusaki A.: “Unconventional ordered phases in frustrated ferromagnetic spin chains”, Workshop on Principles

- and Design of Strongly Correlated Electron Systems, (The Abdus Salam International Center for Theoretical Physics), Trieste, Italy, Aug. (2010).
- Furusaki A.: “Kondo effect on the edge of topological insulators and superconductors”, Opening Symposium of QS2C Theory Forum, Wako, Sept. (2010).
- Onoda S.: “Mean-field and numerical studies on quantum effects in spin ice”, Advanced Working Group on Monopoles in Spin Ice, (Highly Frustrated Magnetism: European Science Foundation), London, UK, Oct. (2010).
- Seo H., Ishibashi S., Fukuyama H., and Terakura K.: “ π -d mixed multiband nature and magnetic structure of single-component molecular conductors”, International Conference on Conducting Materials 2010 (ICoCoM2010), Sousse, Tunisia, Nov. (2010).
- Otsuka Y., Seo H., and Motome Y.: “Numerical study of one-dimensional π -d coupled conductor $\text{TPP}[\text{Fe}(\text{Pc})(\text{CN})_2]_2$ ”, International Conference on Conducting Materials 2010 (ICoCoM2010), Sousse, Tunisia, Nov. (2010).
- Onoda S.: “Intrinsic skyrmion Hall effect in two-dimensional relativistic double-exchange ferromagnets”, International Conference on Frustration in Condensed Matter (ICFCM), (Grants-in-Aid for Scientific Research on Priority Area), Sendai, Jan. (2011).
- Sato M., Hikihara T., and Momoi T.: “Spin dynamics in field-induced quadrupolar and octupolar liquid states in spin-1/2 frustrated chains”, International Conference on Frustration in Condensed Matter (ICFCM), (Osaka University), Sendai, Jan. (2011).
- Momoi T., Shindou R., and Yunoki S.: “Variational Monte Carlo study of spin nematic states in square lattice frustrated ferromagnets”, International Conference on Frustration in Condensed Matter (ICFCM), (Osaka University), Sendai, Jan. (2011).
- Furusaki A.: “Topological insulators and superconductors”, Mini-Workshop on Mesoscopic and Spin Physics 2011, (National Center for Theoretical Sciences), Hsinchu, Taiwan, Jan. (2011).
- Neupert T., Onoda S., and Furusaki A.: “Chain of Majorana states from superconducting Dirac fermions at a magnetic domain wall”, 2011 APS March Meeting (MAR11), (American Physical Society), Dallas, USA, Mar. (2011).
- Wen J., Nambu Y., Rodriguez J., Stock C., Nakatsuji S., Onoda S., Maeno Y., and Broholm C.: “Competing interactions and continuum excitations in the spin-1 triangular lattice antiferromagnet NiGa_2S_4 ”, 2011 APS March Meeting (MAR11), (American Physical Society), Dallas, USA, Mar. (2011).
- Tanaka Y., Furusaki A., and Matveev K.: “Conductance of a helical edge liquid coupled to a magnetic impurity”, 2011 APS March Meeting (MAR11), Dallas, USA, Mar. (2011).
- Onoda S. and Kim K.: “Dissipationless mechanism of skyrmion Hall effect in two-dimensional double-exchange ferromagnets”, 2011 APS March Meeting (MAR11), (American Physical Society), Dallas, USA, Mar. (2011).
- Nakai R., Furusaki A., and Ryu S.: “Extension of the Kitaev model on the square lattice”, 2011 APS March Meeting (MAR11), (American Physical Society), Dallas, USA, Mar. (2011).
- Oguri A. and Tanaka Y.: “Josephson effect and Andreev scattering in a three terminal quantum dot in the Kondo regime”, 2011 APS March Meeting (MAR11), Dallas, USA, Mar. (2011).
- Akhanjee S., Furusaki A., and Tsuchiizu M.: “Pairing correlations in one-dimensional Bose-Fermi mixtures with molecular boundstates”, 2011 APS March Meeting (MAR11), (American Physical Society), Dallas, USA, Mar. (2011).
- Shindou R., Furusaki A., and Nagaosa N.: “Quantum impurity spin in Majorana edge modes”, 2011 APS March Meeting (MAR11), (American Physical Society), Dallas, USA, Mar. (2011).
- (国内会議)
- 桃井勉, 引原俊哉, 佐藤正寛, 古崎昭: “低次元フラストレート磁性体におけるスピンネマティック状態と動的観測量”, 文部科学省科学研究費補助金特定領域研究 (473)2007-2011 年度「フラストレーションが創る新しい物性」平成 22 年度立ち上げ全体会議, 和光, 5 月 (2009).
- 植田浩明, 戸塚圭介, 桃井勉: “フラストレートした bcc 格子磁性体に現われるネマティック秩序相”, 日本物理学会第 65 回年次大会, (日本物理学会), 岡山, 3 月 (2010).
- 桃井勉, 久保健, Sindzingre P.: “フラストレート磁性体におけるマグノンのペアリングと結晶 (SDW) 化の数値的解析”, 文部科学省「最先端・高性能汎用スーパーコンピュータの開発利用」プロジェクト: 次世代ナノ統合シミュレーションソフトウェアの研究開発 第 4 回公開シンポジウム, (分子科学研究所), 岡崎, 3 月 (2010).
- 妹尾仁嗣: “擬 1 次元分子性導体の多様な共存/競合”, CMRC 研究会「分子性結晶における構造物性研究」, (高エネルギー加速器研究機構物質構造科学研究所 構造物性研究センター), つくば, 4 月 (2010).
- 小野田繁樹: “スカーミオンの自発的格子形成と準古典輸送理論”, 文部科学省科学研究費補助金特定領域研究 (473)2007-2011 年度「フラストレーションが創る新しい物性」平成 22 年度立ち上げ全体会議, 和光, 5 月 (2010).
- 古崎昭: “Classification of topological insulators and superconductors”, 東京大学物性研究所理論セミナー, (東京大学物性研究所), 柏, 7 月 (2010).
- 仲井良太, 古崎昭, 笠真生: “2 次元 Kitaev model の拡張について”, 日本物理学会 2010 年秋季大会, (日本物理学会), 堺, 9 月 (2010).
- 小栗章, 田中洋一: “3 端子に接続された量子ドット系の Josephson 電流と Andreev-Kondo 共鳴”, 日本物理学会 2010 年秋季大会, (日本物理学会), 堺, 9 月 (2010).
- 引原俊哉, 古崎昭, Lukyanov S.: “ $S=1/2$ XXZ 量子スピン鎖におけるダイマー相関関数振幅”, 日本物理学会 2010 年

- 秋季大会, (日本物理学会), 堺, 9月 (2010).
- 吉見一慶, 妹尾仁嗣, 石橋章司, Stuart B. E.: “TMTTF 塩におけるスピンプラストラレーションと電荷秩序”, 日本物理学会 2010 年秋季大会, (日本物理学会), 堺, 9月 (2010).
- 進藤龍一, 古崎昭: “マヨラナ界面束縛状態における磁性不純物の効果”, 日本物理学会 2010 年秋季大会, (日本物理学会), 堺, 9月 (2010).
- 佐藤正寛, 引原俊哉, 桃井勉: “磁場中フラストレート強磁性スピン鎖のネマティック液体相における核磁気緩和率の温度磁場依存性”, 日本物理学会 2010 年秋季大会, (大阪府立大学), 堺, 9月 (2010).
- 山田康博, 田中洋一, 川上則雄, 小栗章: “超伝導相関のある量子ドットを介した常伝導リード間の非局所輸送特性: 数値練り込み群による解析”, 日本物理学会 2010 年秋季大会, (日本物理学会), 堺, 9月 (2010).
- 進藤龍一, 柚木清司, 桃井勉: “変分モンテカルロ法による $S=1/2$ 量子フラストレート強磁性体の磁場中相図の決定”, 日本物理学会 2010 年秋季大会, (日本物理学会), 堺, 9月 (2010).
- 古川俊輔, 佐藤正寛, 古崎昭: “容易面異方性を持つフラストレート強磁性スピン鎖におけるネール・ダイマー相間の多重量子相転移”, 日本物理学会 2010 年秋季大会, (日本物理学会), 堺, 9月 (2010).
- 田中洋一, 古崎昭, Matveev K.: “量子スピンホール系のエッジ状態における近藤効果と交流電場応答”, 日本物理学会 2010 年秋季大会, (日本物理学会), 堺, 9月 (2010).
- 池田時浩, 岩井良夫, 小島隆夫, 小野田繁樹, 金井保之, Pokhil G. P., 山崎泰規: “低速多価イオンビーム照射によるガラス伝導度の変化”, 第 71 回応用物理学会学術講演会, (応用物理学会), 長崎, 9月 (2010).
- 池田時浩, 岩井良夫, 小島隆夫, 小野田繁樹, 金井保之, Pokhil G. P., 山崎泰規: “低速多価イオンビーム照射によるガラス伝導度の変化”, 励起ナノプロセス研究会第 6 回研究会, (応用物理学会励起ナノプロセス研究会), 堺, 11月 (2010).
- 吉見一慶, 妹尾仁嗣, 石橋章司, Brown S.: “TMTTF 系における電荷秩序とスピンプラストラレーション”, 研究会「相関電子系における電荷秩序と誘電異常: 遷移金属酸化物と分子性化合物の最近の展開」, (JST CREST「先端超短パルス光源を用いた光誘起相転移現象の解明」), 東京, 11月 (2010).
- 田中洋一, 古崎昭, Matveev K.: “量子スピンホール系のエッジ状態における近藤効果”, 新学術領域研究「対称性の破れた凝縮系におけるトポロジカル量子現象」第 1 回領域研究会, 京都, 12月 (2010).
- 古崎昭: “トポロジカル絶縁体とトポロジカル超伝導体の分類理論”, 新学術領域研究「対称性の破れた凝縮系におけるトポロジカル量子現象」第 1 回領域研究会, (文部科学省科学研究費補助金新学術領域「対称性の破れた凝縮系におけるトポロジカル量子現象」), 京都, 12月 (2010).
- 妹尾仁嗣: “単一成分分子性導体 $Au(tmdt)_2$ と $Cu(tmdt)_2$ における p-d 混成と磁性”, 第 4 回東北大学 G-COE 研究会「金属錯体の固体物性科学最前線: 錯体化学と固体物性物理と生物物性の連携新領域創成をめざして」, 仙台, 12月 (2010).
- 大塚雄一, 妹尾仁嗣, 求幸年: “1 次元 π -d 系における電荷秩序と磁場効果”, 有機固体若手の会冬の学校 2010, (有機固体若手の会), 諏訪, 12月 (2010).
- 妹尾仁嗣, 石橋章司, 大塚雄一, 福山秀敏, 寺倉清之: “単一成分分子性導体の理論モデル化と多様な基底状態”, 新学術領域研究「分子自由度が拓く新物質科学」第 4 回領域会議, 東京, 1月 (2011).
- 大塚雄一, 妹尾仁嗣, 求幸年: “1 次元 p-d 系における電荷秩序と磁場効果の数値的研究”, スプリングセミナー「物性物理の現状と展望」, 福岡県赤村, 2月 (2011).
- 妹尾仁嗣: “多軌道系分子性導体の“フラグメント”化による有効モデル”, スプリングセミナー「物性物理の現状と展望」, 福岡県田川郡, 2月 (2011).
- 妹尾仁嗣, 石橋章司, 大塚雄一, 福山秀敏, 寺倉清之: “ $M(tmdt)_2$ ($M=Ni, Au, Cu$) の多軌道モデル化と磁気状態”, 日本物理学会第 66 回年次大会, 新潟, 3月 (2011).
- 吉見一慶, 妹尾仁嗣, 石橋章司, Brown S.: “TMTTF 塩における電荷秩序による次元制御と磁気基底状態の競合”, 日本物理学会第 66 回年次大会, 新潟, 3月 (2011).
- 大塚雄一, 妹尾仁嗣, 吉見一慶, 加藤岳生: “電荷移動錯体における中性イオン性転移の数値的研究”, 日本物理学会第 66 回年次大会, (日本物理学会), 新潟, 3月 (2011).
- 田中洋一, 古崎昭, Matveev K.: “量子スピンホール系のエッジ状態における近藤効果と熱コンダクタンス”, 日本物理学会第 66 回年次大会, 新潟, 3月 (2011).