

RNC 中務原子核理論研究室

誌 上 発 表 Publications

[雑誌]

(原著論文) * 印は査読制度がある論文誌

- Kawashita Y., Yabana K., Noda M., Nobusada K., and Nakatsukasa T.: "Oscillator strength distribution of C₆₀ in the time-dependent density functional theory", *J. Mol. Struct.: Theochem* **914**, 130–135 (2009). *
- Avogadro P. and Nakatsukasa T.: "The finite amplitude method for the QRPA", *Mod. Phys. Lett. A* **25**, 1999–2000 (2009).
- Takeuchi S., Aoi N., Motobayashi T., Ota S., Takeshita E., Suzuki H., Baba H., Fukui T., Hashimoto Y., Ieki K., Imai N., Iwasaki H., Kanno S., Kondo Y., Kubo T., Kurita K., Minemura T., Nakamura T., Okumura T., Onishi T., Sakurai H., Shimoura S., Sugou R., Suzuki D., Suzuki M., Takashina M., Tamaki M., Tanaka K., Togano Y., and Yamada K.: "Low-lying States in 32Mg studied by proton inelastic scattering", *Phys. Rev. C* **79**, No. 5, pp. 054319-1–054319-11 (2009). *
- Matuyanagi K., Matsuo M., Nakatsukasa T., Hinohara N., and Sato K.: "Open problems in the microscopic theory of large-amplitude collective motion", *J. Phys. G* **37**, No. 6, pp. 064018-1–064018-16 (2010). *
- Yoshida K.: "COLLECTIVE MODES OF EXCITATION IN DEFORMED NEUTRON-RICH Mg ISOTOPES", *Mod. Phys. Lett. A* **25**, No. 21/23, pp. 1783–1786 (2010). *
- Aoi N., Kanno S., Takeuchi S., Suzuki H., Bazin D. P., Bowen M. D., Campbell C. M., Cook J. M., Dinca D. --, Gade A., Glasmacher T., Iwasaki H., Kubo T., Kurita K., Motobayashi T., Mueller W. F., Nakamura T., Sakurai H., Takashina M., Terry J. R., Yoneda K., and Zwahlen H.: "Enhanced collectivity in 74Ni", *Phys. Lett. B* **692**, 302–306 (2010). *
- Nguyen H. Q. and Nguyen D. D.: "Canonical and microcanonical ensemble descriptions of thermal pairing within BCS and quasiparticle random-phase approximation", *Phys. Rev. C* **81**, No. 5, pp. 057302-1–057302-4 (2010). *
- Sarhan B. A. and Kohama A.: "Scaling properties of proton-nucleus total reaction cross sections", *Phys. Rev. C* **81**, No. 5, pp. 057601-1–057601-4 (2010). *
- Oyamatsu K., Iida K., and Koura H.: "Neutron drip line and the equation of state of nuclear matter", *Phys. Rev. C* **81**, 027301-1–027301-4 (2010). *
- Oyamatsu K. and Iida K.: "Symmetry energy at sub-nuclear densities deduced from nuclear masses", *Phys. Rev. C* **81**, 054302-1–054302-6 (2010). *
- Yoshida K.: "Roles of deformation and neutron excess on the giant monopole resonance in neutron-rich Zr isotopes", *Phys. Rev. C* **82**, No. 3, pp. 034324-1–034324-6 (2010). *
- Nguyen H. Q. and Nguyen D. D.: "Thermodynamic properties of hot nuclei within the self-consistent quasiparticle random-phase approximation", *Phys. Rev. C* **82**, No. 4, pp. 044316-1–044316-9 (2010). *
- Hinohara N., Sato K., Nakatsukasa T., Matsuo M., and Matuyanagi K.: "Microscopic description of large-amplitude shape-mixing dynamics with inertial functions derived in local quasiparticle random-phase approximation", *Phys. Rev. C* **82**, No. 6, pp. 064313-1–064313-16 (2010). *
- Ebata S., Nakatsukasa T., Inakura T., Yoshida K., Hashimoto Y., and Yabana K.: "Canonical-basis time-dependent Hartree-Fock-Bogoliubov theory and linear-response calculations", *Phys. Rev. C* **82**, No. 034306, pp. 034306-1–034306-13 (2010). *
- Taniguchi Y., Enyo Y., Kimura M., Ikeda K., Horiuchi H., and Ideguchi E.: "Triaxial superdeformation in ⁴⁰Ar", *Phys. Rev. C* **82**, 011302-1–011302-5 (2010). *
- Nguyen D. D. and Nguyen H. Q.: "Thermal nuclear pairing within the self-consistent quasiparticle RPA", *J. Phys.: Con. Ser.* **267**, No. 1, pp. 012049-1–012049-6 (2011). *
- Sato K. and Hinohara N.: "Shape mixing dynamics in the low-lying states of proton-rich Kr isotopes", *Nucl. Phys. A* **849**, No. 1, pp. 53–71 (2011). *
- Hinohara N. and Enyo Y.: "Triaxial quadrupole deformation dynamics in sd-shell nuclei around ²⁶Mg", *Phys. Rev. C* **83**, No. 1, pp. 014321-1–014321-15 (2011). *
- Yoshida K. and Nakatsukasa T.: "Dipole responses in Nd and Sm isotopes with shape transitions", *Phys. Rev. C* **83**, No. 2, pp. 021304-1–021304-5 (2011). *
- (総説)
- 吉田賢市: "スキルム型密度汎関数を用いた変形中性子過剰核における集団励起モード", *原子核研究* **55**, No. 1, pp. 23–32 (2010).
- (その他)
- Oyamatsu K. and Iida K.: "Equation of state of nuclear matter and nuclei in laboratories and neutron-star crusts", *Nucl. Phys. A* **805**, 585–587 (2008).
- Hinohara N., Sato K., Nakatsukasa T., and Matsuo M.: "Microscopic derivation of five-dimensional collective Hamiltonian of large-amplitude quadrupole motion: application to shape coexistence in proton-rich Se isotopes", *AIP Conf. Proc.* **1235**, 96–100 (2010).
- Hinohara N., Sato K., Nakatsukasa T., and Matsuo M.: "Large-amplitude quadrupole collective dynamics of shape coexistence phenomena in proton-rich Se and Kr isotopes", *AIP Conf. Proc.* **1238**, 286–289 (2010).
- Taniguchi Y., Enyo Y., and Kimura M.: "α clustering and superdeformation of ²⁸Si", *EPJ Web Conf.* **3**, 06004-1–06004-7 (2010).
- Hinohara N., Sato K., Nakatsukasa T., and Matsuo M.: "Microscopic approach to adiabatic large-amplitude quadrupole collective dynamics in Se isotopes", *Mod. Phys. Lett. A* **25**, No. 21-23, pp. 1796–1799 (2010).
- Kohama A., Sarhan B. A., Horiuchi W., Iwasaki S.,

and Suzuki Y.: "Total reaction cross sections of light neutron-rich nuclei in the Glauber approximation", Mod. Phys. Lett. A **25**, No. 21-23, pp. 1963–1966 (2010).

Sato K., Hinohara N., Nakatsukasa T., and Matsuo M.: "Phenomenological analysis of the oblate-prolate symmetry breaking in triaxial deformation dynamics", Mod. Phys. Lett. A **25**, No. 21-23, pp. 2018–2019 (2010).

Sato K., Hinohara N., Nakatsukasa T., and Matsuo M.: "Microscopic analysis of shape mixing in low-lying states of proton-rich Kr isotopes", Mod. Phys. Lett. A **25**, No. 21-23, pp. 2020–2021 (2010).

Taniguchi Y.: "Triaxial superdeformation in ^{40}Ar ", Mod. Phys. Lett. A **25**, 1915–1918 (2010).

[単行本・Proc.]

(総説)

Yabana K., Kawashita Y., Nakatsukasa T., and Iwata J.: "Time-dependent density-functional theory for oscillator strength distribution", Charged Particle and Photon Interactions with Matter, CRC Press, Taylor & Francis Group, Boca Raton, pp. 65–86 (2011).

(その他)

Enyo Y., Hinohara N., Suhara T., and Schuck P.: "Dineutron correlations in nuclear surface", Proceedings of the 12th International Conference on Nuclear Reaction Mechanisms, Varenna, Italy, 2009–6, CERN, Geneva, pp. 291–298 (2010).

口頭発表 Oral Presentations

(国際会議等)

Hinohara N.: "Beyond mean-field description of low-lying states of nuclei", ICHOR-EFES International Symposium on New Facet of Spin-Isospin Responses (SIR2010), (University of Tokyo), Tokyo, Feb. (2010).

Yoshida K.: "Pygmy mode in deformed neutron-rich nuclei", ICHOR-EFES International Symposium on New Facet of Spin-Isospin Responses (SIR2010), Tokyo, Feb. (2010).

Yoshida K.: "Low-lying Excitations and Giant Resonances in Deformed Mg Isotopes", 4th LACM-EFES-JUSTIPEN Workshop, Oak Ridge, USA, Mar. (2010).

Yoshida K.: "Collective modes of excitation in deformed neutron-rich Mg isotopes", International Symposium on Frontiers of Researches in Exotic Nuclear Structures (Niigata2010), (Niigata University), Niigata, Mar. (2010).

Kohama A.: "Total reaction cross sections of light neutron-rich nuclei in the Glauber approximation", International Symposium on Frontiers of Researches in Exotic Nuclear Structures (Niigata2010), (Niigata University), Tokamachi, Niigata Pref., Mar. (2010).

Nakatsukasa T.: "Time-dependent approaches to quantum dynamics of many-body systems", Workshop on Decoherence in Quantum Dynamical Systems, (ECT*), Trento, Italy, Apr. (2010).

Nguyen D. D. and Nguyen H. Q.: "Thermal nuclear pairing within the selfconsistent quasiparticle RPA", 10th International Spring Seminar on Nuclear Physics: New Quests in Nuclear Structure, (University of Napoli), Vietri sul Mare, Italy, May (2010).

Taniguchi Y.: "Clustering correlations and triaxiality in sd-shell region", 2nd Workshop on "State of the Art in Nuclear Cluster Physics", (Universite Libre de Bruxelles), Bruxelles, Belgium, May (2010).

Ebata S., Nakatsukasa T., Inakura T., Hashimoto Y., and Yabana K.: "Linear Response Calculation using Canonical-basis TDHFB with a schematic pairing functional", 2nd EMMI-EFES Workshop on Neutron-Rich Nuclei (EENEN 10), (EFES), Wako, June (2010).

Hinohara N.: "Microscopic description of large-amplitude shape dynamics in neutron-rich Mg isotopes", 2nd EMMI-EFES Workshop on Neutron-Rich Nuclei (EENEN 10), (GSI, University of Tokyo), Wako, June (2010).

Yoshida K.: "Pygmy resonance and giant resonance in deformed nuclei", 2nd EMMI-EFES Workshop on Neutron-Rich Nuclei (EENEN 10), (EMMI-EFES), Wako, June (2010).

Sato K. and Hinohara N.: "Shape mixing dynamics in the low-lying states of proton-rich Kr isotopes", 2nd EMMI-EFES Workshop on Neutron-Rich Nuclei (EENEN 10), (GSI, University of Tokyo), Wako, June (2010).

Inakura T., Nakatsukasa T., and Yabana K.: "Systematic calculation of electric dipole mode with fully self-consistent Skyrme-HF+RPA", 2nd EMMI-EFES Workshop on Neutron-Rich Nuclei (EENEN 10), Wako, June (2010).

Barbieri C.: "Understanding one- and two-nucleon structure from (ab-initio) Green's function theory", 2nd EMMI-EFES Workshop on Neutron-Rich Nuclei (EENEN 10), Wako, June (2010).

Nakatsukasa T.: "Projects for computational fundamental physics in Japan and TD approaches to nuclear structure/reaction", Annual UNEDF Collaboration Meetings, (Michigan State University), East Lansing, USA, June (2010).

Nakatsukasa T.: "Linear response calculations using the Canonical-basis TDHFB with a schematic pairing functional", International Nuclear Physics Conference (INPC2010), (TRIUMF), Vancouver, Canada, July (2010).

Yoshida K.: "Exotic modes of excitation in deformed neutron-rich nuclei", Nuclear Structure 2010, (University of California Berkeley), Berkeley, USA, Aug. (2010).

Inakura T., Nakatsukasa T., and Yabana K.: "Systematic calculations of electric dipole responses with fully self-consistent Skyrme-RPA", Workshop on Gamma Strength and Level Density in Nuclear Physics and Nuclear Technology, (Dresden-Rossendorf), Dresden, Germany, Aug.–Sept. (2010).

- Hinohara N.: "Local QRPA vibrational and rotational inertial functions for large-amplitude quadrupole collective dynamics", Zakopane Conference on Nuclear Physics Extremes of the Nuclear Landscape, (Institute of Nuclear Physics PAN), Zakopane, Poland, Aug.–Sept. (2010).
- Nakatsukasa T.: "Self-consistent description of nuclear photoabsorption cross sections", Zakopane Conference on Nuclear Physics Extremes of the Nuclear Landscape, (Henryk Niewodniczanski Institute of Nuclear Physics PAN), Zakopane, Poland, Aug.–Sept. (2010).
- Nakatsukasa T.: "Complex absorbing potential for the continuum in real-space calculations", JAPAN-ITALY EFES(-INFN) Workshop on Correlations in Reactions and Continuum, (University of Torino, JSPS), Torino, Italy, Sept. (2010).
- Yoshida K.: "Skyrme energy-density functional approach to collective excitations in medium-mass to heavy nuclei", JAPAN-ITALY EFES(-INFN) Workshop on Correlations in Reactions and Continuum, (EFES, INFN), Turin, Italy, Sept. (2010).
- Ebata S., Nakatsukasa T., Inakura T., Yoshida K., Hashimoto Y., and Yabana K.: "The research of E1 mode using Canonical-basis TDHFB", JAPAN-ITALY EFES(-INFN) Workshop on Correlations in Reactions and Continuum, (EFES), Torino, Italy, Sept. (2010).
- Nakatsukasa T.: "Large-scale numerical simulations of nuclear many-body dynamics using the time-dependent density-functional theory", International Workshop Nuclear Structure: Recent Developments, (The Bogoliubov Laboratory of Theoretical Physics), Dubna, Russia, Oct. (2010).
- Inakura T., Nakatsukasa T., and Yabana K.: "Systematic calculations of electric dipole response with fully self-consistent Skyrme-RPA", University of Aizu-JUSTIPEN-EFES Symposium on "Cutting-Edge Physics of Unstable Nuclei", Aizuwakamatsu, Oct. (2010).
- Yoshida K.: "Nuclear density-functional theory for collective dynamics", International Symposium "From Quarks to Supernovae", (University of Tsukuba), Higashiizuchio, Shizuoka Pref., Nov. (2010).
- Yoshida K.: "Exotic modes of excitation in deformed neutron-rich nuclei", International Symposium New Faces of Atomic Nuclei, (EFES, OIST), Okinawa, Nov. (2010).
- Hinohara N.: "Microscopic description of large-amplitude shape-mixing dynamics with local QRPA inertial functions", International Symposium New Faces of Atomic Nuclei, (University of Tokyo), Okinawa, Nov. (2010).
- Nguyen D. D.: "Nuclear Thermodynamics Properties within Self-Consistent Quasiparticle Random-Phase Approximation", Invited seminar by Centre d'Etudes Nucléaires de Bordeaux-Gradignan, (Centre d'Etudes Nucléaires de Bordeaux-Gradignan), Bordeaux-Gradignan, France, Nov. (2010).
- Hinohara N.: "Large-Amplitude Shape Mixing Dynamics with Local QRPA Inertial Functions", University of Aizu-JUSTIPEN-EFES Symposium on "Cutting-Edge Physics of Unstable Nuclei", (University of Aizu), Aizuwakamatsu, Nov. (2010).
- Sato K., Hinohara N., Nakatsukasa T., Matsuo M., and Matuyanagi K.: "Microscopic study of development of quadrupole deformation in neutron-rich Cr isotopes", University of Aizu-JUSTIPEN-EFES Symposium on "Cutting-Edge Physics of Unstable Nuclei", (University of Aizu, International Research Network for Exotic Femto Systems (EFES), Japan-US Theory Institute for Physics with Exotic Nuclei (JUSTIPEN)), Aizuwakamatsu, Nov. (2010).
- Yoshida K.: "Skyrme-QRPA approach to collective modes of excitation in deformed nuclei", University of Aizu-JUSTIPEN-EFES Symposium on "Cutting-Edge Physics of Unstable Nuclei", (University of Aizu, JUSTIPEN, EFES), Aizuwakamatsu, Nov. (2010).
- Taniguchi Y.: "Various deformed states and α clustering in ^{42}Ca ", University of Aizu-JUSTIPEN-EFES Symposium on "Cutting-Edge Physics of Unstable Nuclei", (University of Aizu), Aizuwakamatsu, Nov. (2010).
- Nguyen D. D.: "Nuclear Thermodynamics Properties within Self-Consistent Quasiparticle Random-Phase Approximation", Seminar at Centro de Fisica das Interacoes Fundamentais, Instituto Superior Tecnico, Lisbon, Portugal (CFIF, IST), (CFIF, Instituto Superior Tecnico), Lisbon, Portugal, Nov.–Nov. (2010).
- Taniguchi Y.: "Coexistence of various deformed states and α clustering in ^{42}Ca ", French Japanese Symposium on Nuclear Structure Problems, Wako, Jan. (2011).
- Hinohara N.: "Large-amplitude quadrupole collective dynamics in neutron-rich Mg and Cr isotopes", French Japanese Symposium on Nuclear Structure Problems, Wako, Jan. (2011).
- Sato K., Hinohara N., Nakatsukasa T., Matsuo M., and Matuyanagi K.: "Microscopic description of large-amplitude large-amplitude collective motions with local QRPA inertial masses", French Japanese Symposium on Nuclear Structure Problems, (FJNSP LIA , EFES), Wako, Jan. (2011).
- Inakura T.: "Recent progress of nuclear density functional calculations -towards to next-generation supercomputer-", French-Japanese Symposium on Nuclear Structure Problems, Wako, Jan. (2011).
- Nakatsukasa T.: "Density functional approaches to atomic nuclei -Historical review and recent developments-", International Symposium Nanoscience and Quantum Physics (nanoPHYS'11), (Tokyo Institute of Technology), Tokyo, Jan. (2011).
- Yoshida K.: "Skyrme energy-density functional approach to collective dynamics", International EFES-IN2P3 Conference "Many body correlations from dilute to

- dense nuclear systems”, (EFES, IN2P3, LIA), Paris, France, Feb. (2011).
- Sato K., Hinohara N., Nakatsukasa T., Matsuo M., and Matuyanagi K.: “Microscopic approach to large-amplitude shape mixing dynamics with local QRPA inertial masses”, 5th LACM-EFES-JUSTIPEN Workshop, (the Japan-US Theory Institute for Physics with Exotic Nuclei (JUSTIPEN), the Todai-RIKEN Joint International Program for Nuclear Physics (TORIJIN), the JSPS Core-to-Core program), Oak Ridge, USA, Mar. (2011).
- (国内会議)
- 江幡修一郎, 中務孝, 稲倉恒法, 橋本幸男, 矢花一浩: “Skyrme-TDHF+“BCS”を用いた線形応答計算”, KEK 理論センター研究会「原子核・ハドロン物理」,(高エネルギー加速器研究機構, 素粒子原子核研究所), つくば, 8月 (2009).
- 渡辺元太郎: “Efficient scheme for creating NOON state in a double-well potential: assisted higher-order cotunneling”, 筑波大学原子核理論研究室セミナー, (筑波大学), 筑波, 9月 (2009).
- 渡辺元太郎: “分子動力学法でせまる原子核のバスタ相:超新星コアにおけるバスタ相の形成”, 早稲田大学 山田・前田研合同セミナー, (早稲田大学), 東京, 11月 (2009).
- 吉田賢市: “Core polarization for the electric quadrupole moment of neutron-rich Aluminum isotopes”, 日本物理学会第 65 回年次大会, 岡山, 3月 (2010).
- 渡辺元太郎: “時間変調トンネル確率による NOON 状態の効率的な生成”, 日本物理学会第 65 回年次大会, (日本物理学), 岡山, 3月 (2010).
- 佐藤弘一, 日野原伸生: “5 次元四重極集団 Hamiltonian を用いた Kr 同位体における変形共存の微視的解析”, 日本物理学会第 65 回年次大会, 岡山, 3月 (2010).
- 吉田賢市: “Skyrme density-functional approach to excitation modes in deformed neutron-rich nuclei”, 日本物理学会第 65 回年次大会, 岡山, 3月 (2010).
- 日野原伸生, 佐藤弘一, 中務孝, 松尾正之, 松柳研一: “四重極集団 Hamiltonian による Se 同位体の低励起状態の系統的記述”, 日本物理学会第 65 回年次大会, 岡山, 3月 (2010).
- 江幡修一郎, 中務孝, 稲倉恒法, 橋本幸男, 矢花一浩: “中重核に対する Skyrme-TDHF+“BCS”的アプローチ”, 日本物理学会第 65 回年次大会, 岡山, 3月 (2010).
- 小濱洋央, 飯田圭, 親松和浩, 岩瀬広, 仁井田浩二: “重核+重核反応の全反応断面積: 高エネルギー領域の振舞い”, 日本物理学会 2010 年秋季大会, 北九州, 9 月 (2010).
- 吉田賢市: “Skyrme energy-density functional approach to collective excitations in medium-mass to heavy nuclei”, 京都大学基礎物理学研究所セミナー, (基礎物理学研究所), 京都, 10 月 (2010).
- 谷口億宇, 延與佳子: “断熱近似核間ポテンシャルと低エネルギー核融合断面積”, 基研研究会「大振幅集団運動の微視的理論」, (京都大学), 京都, 10 月 (2010).
- 日野原伸生: “断熱的自己無撞着集団座標法による集団経路の抜き出し”, 基研研究会「大振幅集団運動の微視的理論」, (京都大学基礎物理学研究所), 京都, 10 月 (2010).
- 吉田賢市: “Skyrme energy-density functional approach to nuclear collective dynamics”, 基研研究会「大振幅集団運動の微視的理論」, (基礎物理学研究所), 京都, 10 月 (2010).