

Theoretical Nuclear Physics Laboratory

Publications

[Journal]

(Original Papers) *Subject to Peer Review

- Avogadro P., and Nakatsukasa T.: “Efficient calculation for the quasiparticle random-phase approximation matrix”, *Phys. Rev. C* **87**, 014331-1–014331-7 (2013). *
- Fukuoka Y., Shinohara S., Nakatsukasa T., and Yabana K.: “Deformation and cluster structures in ^{12}C studied with configuration mixing using Skyrme interactions”, *Phys. Rev. C* **88**, 014321-1–014321-14 (2013). *
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- Inakura T., Nakatsukasa T., and Yabana K.: “Low-energy E1 strength in select nuclei: Possible constraints on neutron skin and symmetry energy”, *Phys. Rev. C* **88**, 051305(R)-1–051305(R)-5 (2013). *
- Gu H. Q., Liang H. Z., Long W. H., Van Giai N., and Meng J.: “Slater approximation for Coulomb exchange effects in nuclear covariant density functional theory”, *Phys. Rev. C* **87**, 041301(R) (2013). *
- Liang H. Z., Nakatsukasa T., Niu Z. M., and Meng J.: “Feasibility of the finite-amplitude method in covariant density functional theory”, *Phys. Rev. C* **87**, 054310 (2013). *
- Niu Z. M., Niu Y. F., Liang H. Z., Long W. H., Niksic T., Vretenar D., and Meng J.: “ β -decay half-lives of neutron-rich nuclei and matter flow in the r-process”, *Phys. Lett. B* **723**, 172-176 (2013). *
- Niu Z. M., Niu Y. F., Liu Q., Liang H. Z., and Guo J. Y.: “Nuclear β^+ /EC decays in covariant density functional theory and the impact of isoscalar proton-neutron pairing”, *Phys. Rev. C* **87**, 051303(R) (2013). *
- Shen S. H., Liang H. Z., Zhao P. W., Zhang S. Q., and Meng J.: “Pseudospin symmetry in supersymmetric quantum mechanics. II. Spin-orbit effects”, *Phys. Rev. C* **88**, 024311 (2013). *
- Sato K., Dobaczewski J., Nakatsukasa T., and Satula W.: “Energy-density-functional calculations including proton-neutron mixing”, *Phys. Rev. C* **88**, p. 061301(R) (2013). *
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- Iida K., and Oyamatsu K.: “Symmetry energy, unstable nuclei and neutron star crusts”, *The European Physical Journal A* **50**, 42 (2014). *
- Dinh Dang N.: “Giant dipole resonance in highly excited nuclei”, *EPJ Web of Conferences* **66**, 02024-p.1–02024-p.4 (2014). *
- Dey B., Mondal D., Pandit D., Mukhopadhyay S., Pal S., Bhattacharya A., De A., Banerjee K., Dinh Dang

N., Quang Hung N., Banerjee S.R.: “Probing the critical behavior in the evolution of GDR width at very low temperatures in $A \sim 100$ mass region”, *Phys. Lett. B* **731**, 92–96 (2014). *

Dinh Dang N., Quang Hung N.: “On the importance of using exact pairing in the study of pygmy dipole resonance”, *J. Phys. G* **40**, 105103-1–105103-19 (2013). *

Dinh Dang N., Ciemala N., Kmiecik M., Maj A.: “Giant dipole resonance in ^{88}Mo from phonon damping model’s strength functions averaged over temperature and angular momentum distributions”, *Phys. Rev. C* **87**, 054313-1–054313-8 (2013). *

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(Review)

中務孝: “ $N = Z$ 原子核の謎と新しい対凝縮”, *パリティ* **28**, No. 1, pp. 41–42 (2013).

[Book · Proceedings]

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Ebata S., Inakura T., and Nakatsukasa T.: “Time-dependent density-functional studies on strength functions in neutron-rich nuclei”, *Proceedings of 5th International Conference on Fission and properties of neutron-rich nuclei (ICFN5)* (World Scientific), Sanibel Island, USA, 2012–7, World Scientific, Singapore, p. 635–642 (2013).

Liang H. Z., Meng J., Nakatsukasa T., Niu Z. M., Ring P., Roca-Maza X., Van Giai N., and Zhao P. W.: “Nuclear charge-exchange excitations in localized covariant density functional theory”, *EPJ Web of Conferences Vol. 66, The 25th International Nuclear Physics Conference, Florence, Italy, 2013–6*, EDP Sciences, Les Ulis, p. 02064 (2014). *

~~Matsuo M., Hinohara N., Sato K., Matsuyanagi K., Nakatsukasa T., and Yoshida K.: “Quadrupole shape dynamics from the viewpoint of a theory of large-amplitude collective motion”, *Proceedings of 20th Nuclear Physics Workshop “Marie and Pierre Curie”, Kazimierz, Poland, Sep., 2013*, IOP Publishing, Bristol, p. 054020 (2013). *~~

鷲山広平: “微視的反應模型による低エネルギー重イオン反応”, *原子核研究 Vol.58 Supplement 2 2013 年夏の学校特集号*, 蒲郡, 2013–8, 原子核研究, pp. 27–32 (2014).

Oral Presentations

(International Conference etc.)

Nakatsukasa T.: “Stochastic generation of low-energy configurations and configuration mixing calculation”, *INT workshop on Computational and Theoretical Advances for Exotic Isotopes in the Medium Mass Region*, (INT, University of Washington), Seattle, USA, March–April (2013).

Nakatsukasa T.: “Time-dependent density-functional theory with the continuum”, *ECT* workshop THEXO*

- on Nuclear structure and astrophysical applications, (ECT*), Trento, Italy, July (2013).
- Nakatsukasa T.: “Rotational effects on nuclear structure properties”, 8pi Spectrometer Symposium: a Celebration of Discovery, (TRIUMF), Vancouver, Canada, July (2013).
- Nakatsukasa T.: “Finite amplitude method in linear response TDDFT calculations”, International School on Nuclear Physics, Neutron Physics and Applications, (Bulgarian Academy of Sciences), Varna, Bulgaria, September (2013).
- Nakatsukasa T.: “Basic issues in theories of large amplitude collective motion”, INT workshop on Quantitative Large Amplitude Shape Dynamics: fission and heavy ion fusion, (INT, University of Washington), Seattle, USA, September–November (2013).
- Liang H. Z.: “Localized form of Fock terms in nuclear covariant density functional theory”, THEXO Workshop on Nuclear Structure and Astrophysical Applications, (ECT*), Trento, Italy, Jul. (2013).
- Liang H. Z., Meng J., Nakatsukasa T., Niu Z. M., Ring P., Roca-Maza X., Van Giai N., and Zhao P. W.: “Nuclear charge-exchange excitations in localized covariant density functional theory”, The 25th International Nuclear Physics Conference, (INFN), Florence, Italy, Jun. (2013).
- Liang H. Z.: “Pseudospin symmetry in supersymmetric quantum mechanics”, iTHES workshop on “Exploration of hidden symmetries in atomic nuclei”, (RIKEN), Wako, Jul. (2013).
- Liang H. Z., Meng J., Shen S. H., Van Giai N., Zhang S. Q., Zhang Y., and Zhao P. W.: “Pseudospin symmetry in nuclear single-particle spectra and its perturbative interpretation”, The XX International School on Nuclear Physics, Neutron Physics and Applications, (Institute for Nuclear Research and Nuclear Energy), Varna, Bulgaria, Sep. (2013).
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- Liang H. Z.: “Nuclear charge-exchange excitation and its microscopic mechanism”, Seminar of Institute of Theoretical Physics, Chinese Academy of Sciences, (Institute of Theoretical Physics, Chinese Academy of Sciences), Beijing, China, Nov. (2013).
- Liang H. Z.: “Nuclear collective excitations in covariant density functional theory”, The 4th Lectures on Covariant Density Functional Theory in Nuclear Physics, (Guangxi Normal University), Guilin, China, Nov. (2013).
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- Liang H. Z.: “Relativistic studies of spin-isospin resonances”, IInd Topical Workshop on Modern Aspects in Nuclear Structure, (Universita degli Studi di Milano), Bormio, Italy, Feb. (2014).
- Liang H. Z.: “Nuclear beta-decay half-lives and the impact of isoscalar proton-neutron pairing”, International Molecule-type Workshop on New correlations in exotic nuclei and advances of theoretical models, (YITP), Kyoto, Mar. (2014).
- Sato K., Nakatsukasa T., Satula W., and Dobaczewski J.: “Energy-density-functional calculations including the proton-neutron mixing”, JUSTIPEN-JUSEIPEN Workshop, Wako, Dec. (2013).
- Sato K., Nakatsukasa T., Satula W., and Dobaczewski J.: “Energy-density-functional calculations including the proton-neutron mixing”, 2nd Topical Workshop on Modern Aspects in Nuclear Structure, Bormio, Italy, Feb. (2014).
- Sato K., Nakatsukasa T., Satula W., and Dobaczewski J.: “Mean-field calculations based on the proton-neutron mixed energy density functional”, International Molecule-type Workshop on New correlations in exotic nuclei and advances of theoretical models, 京都, Mar. (2014).
- Washiyama K.: “Internuclear potential and energy dissipation in fusion reactions from a time-dependent energy density functional model”, Advances in time-dependent methods for quantum many-body systems, (ECT*), Trento, Italy, Oct. (2013).
- Washiyama K.: “Macroscopic properties in low-energy nuclear reactions by microscopic TDDFT”, Quantitative Large Amplitude Shape Dynamics: fission and heavy ion fusion, (Institute for Nuclear Theory, University of Washington), Seattle, USA, Oct. (2013).
- Washiyama K.: “Regularized multi-reference energy density functional calculations with new Skyrme parametrizations”, Symposium in honour of Paul-Henri Heenen, (Université Libre de Bruxelles), Brussels, Belgium, Oct. (2013).
- Washiyama K.: “Microscopic TDDFT for low-energy fusion reactions”, JUSTIPEN-JUSEIPEN Workshop, (RIKEN Nishina Center and Center for Nuclear Study, University of Tokyo) Wako, Japan, Dec. (2013).
- Washiyama K.: “Fusion and quasi-fission in heavy systems with the microscopic time-dependent energy density functional theory”, VI International Conference FUSION14, (Inter University Accelerator Centre), New Delhi, India, Feb. (2014).
- Dinh Dang N.: “Giant dipole resonance from phonon-damping model’s strength functions averaged over temperature and angular momentum”, Invited seminar, (Saha Institute of Nuclear Physics), Kolkata, December (2013).
- Dinh Dang N.: “Viscosity: From air to hot nuclei”, International Symposium on Nuclear Physics, (Bhabha

- Atomic Research Center), Mumbai, December (2013).
- Dinh Dang N.: “Giant dipole resonance in highly excited nuclei”, International Nuclear Physics Conference INPC 2013, June 2 - 7, 2013, (IUPAP), Florence, June (2013). (Domestic Conference)
- 中務孝: “TDDFT 計算による原子核の集団励起と反応”, 第 3 回 HPCI 戦略プログラム分野 2 × 分野 5 異分野交流研究会「量子多体系のダイナミクス計算 – 原子核から物質科学まで –」, (分子科学研究所), 岡崎, 11 月 (2013).
- 中務孝: “原子核物理入門”, KEK サマーチャレンジ, (KEK), つくば, 8 月 (2013).
- 中務孝: “原子核密度汎関数理論”, サマースクール「クォークから超新星爆発まで」, (京都大学基礎物理学研究所), 京都, 8 月 (2013).
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- 鷺山広平: “重い原子核同士の融合反応における原子核間ポテンシャルと散逸エネルギーの微視的導出”, 日本物理学会秋季大会, (日本物理学会), 高知, 9 月 (2013).
- 鷺山広平: “TDDFT 計算による低エネルギー重イオン核融合反応”, HPCI 戦略プログラム分野 2 × 分野 5 異分野交流研究会「量子多体系のダイナミクス計算 – 原子核から物質科学まで –」, (分子科学研究所), 岡崎, 11 月 (2013).
- 鷺山広平: “TDHF による重い原子核同士の核融合反応と準核分裂反応”, 日本物理学会年次大会, (日本物理学会), 平塚, 3 月 (2014).
- 小濱洋央, 飯田圭, 親松和浩: “中間エネルギーでの不安定核全反応断面積と変形度”, 日本物理学会 2013 年第 68 回年次大会, (日本物理学会), 東広島, 3 月 (2013).
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