大石　知広　（２０２４年１０月２８日　更新）

A. 査読付き原著論文　※逆年代順に記載。

A18. Nobuo Hinohara, Tomohiro Oishi, and Ken’ichi Yoshida, “Triplet-odd pairing in finite nuclear systems: Even-even singly closed nuclei”, [Physical Review C 109, 034302 (2024)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.109.034302).

A17. Tomoya Naito, Tomohiro Oishi, Hiroyuki Sagawa, and Zhiheng Wang, “Comparative study on charge radii and their kinks at magic numbers”, [Physical Review C 107, 054307 (2023)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.107.054307).

A16. Tomohiro Oishi, “Time-dependent Dirac equation applied to one-proton radioactive emission”, [Physical Review C 107, 034301 (2023)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.107.034301).

A15. Goran Kruzic, Tomohiro Oishi, and Nils Paar, “Magnetic quadrupole transitions in the relativistic energy density functional theory”, [The European Physical Journal A, Vol. 59 (3), page 50 (2023)](https://link.springer.com/article/10.1140/epja/s10050-023-00958-0).

A14. Tomohiro Oishi, Ante Ravlic, and Nils Paar, “Symmetry breaking of Gamow-Teller and magnetic-dipole transitions and its restoration in calcium isotopes”, [Physical Review C 105, 064309 (2022)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.105.064309).

A13. Tomohiro Oishi, Goran Kruzic, and Nils Paar, “Discerning nuclear pairing properties from magnetic dipole excitation”, [The European Physical Journal A, Vol. 57 (6), page 1-7 (2021).](https://link.springer.com/article/10.1140/epja/s10050-021-00488-7)

A12. Goran Kruzic, Tomohiro Oishi, and Nils Paar, “Evolution of magnetic dipole strength in 100-140 Sn isotope chain and the quenching of nucleon g factors”, [Physical Review C 103, 054306 (2021).](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.103.054306)

~~A12~~. (Cancelled due to the predatory journal. See D7.)

A11. Tomohiro Oishi, Goran Kruzic, and Nils Paar, “Role of residual interaction in the relativistic description of M1 excitation”, [Journal of Physics G: Particle and Nuclear Physics, Vol. 47, 115106 (2020).](https://iopscience.iop.org/article/10.1088/1361-6471/abaeb1)

A10. Goran Kruzic, Tomohiro Oishi, and Nils Paar, “Magnetic dipole excitations based on the relativistic nuclear energy density functional”, [Physical Review C 102, 044315 (2020).](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.102.044315)

A9. Tomohiro Oishi and Nils Paar, “Magnetic dipole excitation and its sum rule in nuclei with two valence nucleons”, [Physical Review C 100, 024308 (2019)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.024308).

A8. Tomohiro Oishi, Lorenzo Fortunato, and Andrea Vitturi, “Two-fermion emission from spin-singlet and triplet resonances in one dimension”, [Journal of Physics G: Particle and Nuclear Physics, Vol. 45 (10), 105101 (2018).](https://iopscience.iop.org/article/10.1088/1361-6471/aad8f8)

A7. Tomohiro Oishi, “One-proton emission from the 6LambdaLi hypernucleus”, [Physical Review C 97, 024314 (2018)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.97.024314).

A6. Tomohiro Oishi, Markus Kortelainen and Alessandro Pastore, “Dependence of two-proton radioactivity on nuclear pairing models”, [Physical Review C 96, 044327 (2017).](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.96.044327)

A5. Tomohiro Oishi, Markus Kortelainen, and Nobuo Hinohara, “Finite amplitude method applied to giant dipole resonance in heavy rare-earth nuclei”, [Physical Review C 93, 034329 (2016)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.93.034329).

A4. Tomohiro Oishi, Kouichi Hagino, and Hiroyuki Sagawa, “Role of diproton correlation in two-proton emission decay of the 6Be nucleus”, [Physical Review C 90, 034303 (2014)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.90.034303).

A3. Takahito Maruyama, Tomohiro Oishi, Kouichi Hagino, and Hiroyuki Sagawa, “Time-dependent approach to many-particle tunneling in one dimension”, [Physical Review C 86, 044301 (2012)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.86.044301).

A2. Tomohiro Oishi, Kouichi Hagino, and Hiroyuki Sagawa, “Effect of proton-proton Coulomb repulsion on soft dipole excitations of light proton-rich nuclei”, [Physical Review C 84, 057301 (2011)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.84.057301).

A1. Tomohiro Oishi, Kouichi Hagino, and Hiroyuki Sagawa, “Diproton correlation in the proton-rich Borromean nucleus 17Ne”, [Physical Review C 82, 024315 (2010)](https://journals.aps.org/prc/abstract/10.1103/PhysRevC.82.024315).

学位論文

（博士論文）Diproton Correlation and Two-Proton Emission from Proton-Rich Nuclei　東北大学(2014)

Open-print version: <https://arxiv.org/abs/2303.10529>

（修士論文）密度依存デルタ関数型対相関力を用いた17Neの三体構造計算　東北大学(2010)

B. 査読中プレプリント

B2. Tomohiro Oishi, “Spin entanglement in two-proton emission from 6Be”, [arXiv: 2407.11136 (2024)](https://arxiv.org/abs/2407.11136).

B1. Tomohiro Oishi, and Masaaki Kimura, “Interference of resonances in two-proton emission of 16Ne”, [arXiv: 2312.15017 (2023)](https://arxiv.org/abs/2312.15017).

C. 研究会プロシーディング（査読付き）

C7. Nils Paar, Goran Kruzic, and Tomohiro Oishi, “Nuclear magnetic transitions in the relativistic energy density functional approach” in HINPw6 - Hellenic Institute of Nuclear Physics, 6th International Workshop on Perspectives on Nuclear Physics; From Fundamentals to Applications, [European Physical Journal: Web of Conferences, Vol. 252, 02002 (2021)](https://www.epj-conferences.org/articles/epjconf/abs/2021/06/epjconf_hinpw62021_02002/epjconf_hinpw62021_02002.html).

C6. Lorenzo Fortunato et al. with Tomohiro Oishi, “An overview of the scientific contribution of ANDREA VITTURI to nuclear physics”, being an account of the “Theoretical Nuclear Physics in Padova: a meeting in honour of ANDREA VITTURI” in Padova, Italy, 21-22 May 2019, [The European Physical Journal A, Vol. 56, number 49 (2020).](https://link.springer.com/article/10.1140/epja/s10050-020-00034-x)

C5. Tomohiro Oishi, Goran Kruzic, and Nils Paar, “Relativistic energy-density functional approach to magnetic-dipole excitation”, proceeding in 27th International Nuclear Physics Conference (INPC2019), [Journal of Physics: Conference Series, Vol. 1643, 012153 (2020)](https://iopscience.iop.org/article/10.1088/1742-6596/1643/1/012153/meta).

C4. Tomohiro Oishi, and Lorenzo Fortunato, “TIME-DEPENDENT METHOD FOR MANY-BODY PROBLEMS AND ITS APPLICATION TO NUCLEAR RESONANT SYSTEMS”, proceeding of “XXXV Mazurian Lakes Conferences on Physics”, [Acta Physica Polonica B 49, pp 293-300 (2018)](http://www.actaphys.uj.edu.pl/findarticle?series=Reg&vol=49&page=293).

C3. Tomohiro Oishi, “Time-dependent Calculations for Two-proton Decay Width with Schematic Density-dependent Contact Pairing Interaction”, proceeding of PROCON2015, [Chinese Academy of Science, Nuclear Physics Review 33 (2), pp 203-206 (2016)](http://www.npr.ac.cn/article/doi/10.11804/NuclPhysRev.33.02.203).

C2. Tomohiro Oishi, Kouichi Hagino and Hiroyuki Sagawa, “Time-Dependent Approach to Two-Proton Radioactivity”, proceeding of the 12th Asia Pacific Physics Conference (APPC12) by Physical Society of Japan, [JPS Conf. Proc. Vol.1, 013056 (2014).](https://journals.jps.jp/doi/10.7566/JPSCP.1.013056)

C1. Kouichi Hagino, Hiroyuki Sagawa, and Tomohiro Oishi, “DINEUTRON CORRELATION IN THE GROUND STATE AND E1 EXCITATIONS OF BORROMEAN NUCLEI”, [Modern Physics Letters A, Vol.25, 1842-1845 (2010).](https://www.worldscientific.com/doi/10.1142/S0217732310000459)

D. その他出版物（査読なし）

D7. Esra Yuksel, Tomohiro Oishi, and Nils Paar, “Nuclear Equation of State in the Relativistic Point-Coupling Model Constrained by Excitations in Finite Nuclei”, [Universe Vol. 7 (3), page 71 (2021).](https://www.mdpi.com/2218-1997/7/3/71)

D6. 大石知広「海外通信：イタリアの古都Padovaから」、原子核研究 Vol. 63 (2), page 4-7 (2019).

D5. Tomohiro Oishi, Supplemental note for “Two-fermion emission from spin-singlet and triplet resonances in one dimension”, arXiv: 1810.05521 (2018).

D4. Tomohiro Oishi and Lorenzo Fortunato, “Correlation Energy of Proton-Neutron Subsystem in Valence Orbit”, arXiv: 1706.06115 (2017).

D3. L. Fortunato and Tomohiro Oishi, “Diagonalization scheme for the many-body Schroedinger equation”, arXiv: 1701.04684 (2017).

D2. 大石知広「スーパーRAとしての研究活動と将来の展望」、Outreach journal by the GCOE programme in Tohoku University, Vol. 15, p9 (2012).

D1. Tomohiro Oishi, Kouichi Hagino and Hiroyuki Sagawa, “Analysis of 17Ne nucleus by three-body model and di-proton correlation”, 原子核研究 Vol. 55 (suppl. 1), page 63-66 (2011).

E. 競争的研究資金（科研費など）

なし。

F. その他研究資金、フェローシップなど

F8. 2022年度湯川特別研究員　　　　対象者：大石知広　　　財源：公益財団法人湯川記念財団

期間：　２０２２年５月から２０２４年４月まで。　　金額：　33万円／月（給与）＋年間17万円（研究支援費）。

F7. Post-doctoral fellowship in the University of Zagreb, Croatia.

期間：September, 2021 – April 2022.

財源：“Exotic Nuclear Structure and Dynamics” (project No. TTP-2018-07-3554, director: Prof. Kosuke Nomura)

by Croatian Science Foundation and Ecole Polytechnique de Lausanne.

代表者：　Prof. Kosuke Nomura (Univ. of Zagreb, Croatia)

配分金額：　1100ユーロ／月（給与）＋年間2000ユーロ（研究支援費）。

F6. Post-doctoral fellowship in the University of Zagreb, Croatia.

期間：September, 2018 – August, 2021.

財源：[1] “Structure and Dynamics of Exotic Femtosystems” (project ID: IP-2014-09-9159) by Croatian Science Foundation;

[2] “QuantiXLie Centre of Excellence” (project ID: KK. 01.1.1.01) by Croatian Government and the European Union.

代表者：　Prof. Nils Paar (Univ. of Zagreb, Croatia)

配分金額：　1100ユーロ／月（給与）＋年間2000ユーロ（研究支援費）。

F5. Post-doctoral fellowship in the University of Padova, Italy

期間：September, 2016 – August, 2018.

財源: “Inter-disciplinary Applications of Nuclear Theory: from atoms and molecules to stars” (project code:

PRAT no. CPDA154713).

代表者：　Prof. Lorenzo Fortunato (Univ. di Padova, Italy)

配分金額：　1950ユーロ／月（給与）＋年間3000ユーロ（研究支援費）。

F4. Post-doctoral fellowship in Helsinki Institute of Physics and University of Jyväskylä, Finland

期間：April, 2014 – August, 2016.

財源：[1] Finland Distinguished Professor Programme (FiDiPro) 2012; [2] Centre of Excellence Programme 2012-2017

in Nuclear and Accelerator Based Programme at JYFL.

代表者：[1] Prof. Jacek Dobaczewski (Univ. of York, UK, and Univ. of Jyvaskyla, Finland);

[2] Dr. Markus Kortelainen (Univ. of Jyvaskyla, Finland).

配分金額（上記２点の合算）：　3100ユーロ／月（給与）＋年間1000ユーロ（研究支援費）

F3. （学内研究支援予算）東北大学大学院理学研究科「卓越した大学院拠点」2013年度リサーチアシスタント

期間：２０１３年５月から２０１４年２月まで。　　　金額：　6.1万円／月（給与）＋年間10万円（研究支援費）。

F2. （学内研究支援予算）東北大学GCOEプログラム「物質階層を紡ぐ科学フロンティアの新展開」2012年度

スーパーリサーチアシスタント

期間：２０１２年６月から２０１３年３月まで。　　金額：8.8万円／月（給与）＋年間20万円（研究支援費）。

F1. （学内研究支援予算）東北大学GCOEプログラム「物質階層を紡ぐ科学フロンティアの新展開」2011年度

リサーチアシスタント

期間：２０１１年５月から２０１２年３月まで。　　金額：6.0万円／月（給与）＋年間10万円（研究支援費）。