

履歴書

武田 紘樹

住所: 〒606-8502

京都市左京区北白川追分町

京都大学理学部物理学第二教室

天体核研究室

電話番号: +81-75-753-3876

E-mail: takeda@tap.scphys.kyoto-u.ac.jp

Web サイト: <https://hiroki-takeda.github.io/index.html>

生年月日: 1993 年 10 月 5 日

学歴

- 2018-2021 東京大学大学院理学系研究科物理学専攻博士課程,
Tests of Alternative Theories of Gravity through Gravitational-Wave Polarizations,
取得年月: 2021 年 3 月.
- 2016-2018 東京大学大学院理学系研究科物理学専攻修士課程,
Development of Monolithic Optical System for Lorentz Invariance Test,
取得年月: 2018 年 3 月.
- 2012-2016 横浜国立大学理工学部数物・電子情報系学科物理工学 EP,
Proposal of Rayleigh Scattering Length Measurement in Liquid Xenon,
取得年月: 2016 年 3 月.

職歴

- 2023-現在 特定助教,
京都大学白眉センター.
- 2023-現在 連携助教,
京都大学大学院理学研究科.
- 2021-2023 日本学術振興会特別研究員 (PD),
京都大学大学院理学研究科物理学・宇宙物理学専攻 物理第二分野.
- 2018-2021 日本学術振興会特別研究員 (DC1),
東京大学大学院理学系研究科物理学専攻.
- 2016-2021 Advanced Leading Graduate Course for Photon Science 生,
東京大学大学院理学系研究科物理学専攻.

受賞歴

- 2021 GWIC-Braccini Prize Honorable Mention,
Gravitational Wave International Committee.
2021 第 76 回年次大会（2021 年）日本物理学会学生優秀発表賞.
- 2015 横浜国立大学理工学部数物・電子情報系学科成績優秀賞.
- 2015 横浜国立大学横浜物理工学会同窓会優秀賞.
- 2014 横浜国立大学理工学部数物・電子情報系学科物理工学 EP I 実習優秀ポスター賞.

助成金

- 2024-2029 京都大学白眉プロジェクト 研究代表者,
研究題目: コンパクト連星合体からの重力波の偏極モード探査による極限環境での重力理論検証,
総額 1432 万円.
- 2022-2026 日本学術振興会 若手研究 研究代表者,
研究題目: 重力波伝播過程の偏極モード探査による宇宙論的距離スケールでの重力理論の検証,
総額 360 万円.
- 2021-2024 日本学術振興会特別研究員 (PD) 特別研究員奨励費 研究代表者,
研究題目: コンパクト連星合体からの重力波偏極モード探査による強重力場での重力理論検証,
総額 364 万円.
- 2018-2021 日本学術振興会特別研究員 (DC1) 特別研究員奨励費 研究代表者,
研究題目: 光リング共振器を用いた光子のローレンツ不変性検証,
総額 280 万円.

教育歴

- 2025- 京都大学 理学部物理学科 4 年生 「物理科学課題研究 P5」卒業研究に相当.
- 2025- 龍谷大学 3-4 年生 非常勤講師「複雑系の科学」.
- 2022-2023 舞鶴工業高等専門学校 機械工学科 4 年生 非常勤講師「物理学 III(力学)」.
- 2018-2019 東京大学 理学部 物理学科 学部 3 年 「学生実験 II(ブラウン運動)」TA.
- 2012-2016 武蔵ゼミナール 進学教室スクール 8 教室 学習塾講師.

委員等

- 2026 年 1 月 国際会議「JGRG34」 Local Organizing Committee メンバー.
- 2025 年 10 月 研究会「ACG2025」 オーガナイザー (chair).
- 2025 年 白眉センター 部局情報セキュリティ技術責任者.
- 2025 年 3 月 研究会「Gravitational waves Related workshop in Western Japan」 オーガナイザー (chair).
- 2024 年 白眉センター HP ワーキンググループ.
- 2024 年 白眉センター 14 期 PR グループ代表.
- 2020 年 KAGRA Scientific Congress 学生代表.

所属団体

- 2019-現在 日本天文学会 会員.
- 2018-現在 LISA Consortium メンバー.
- 2017-現在 KAGRA Collaboration.
- 2016-現在 日本物理学会 会員.

指標

出版物: 著書 2, 主著論文 20 報, 共著論文 71 報, 合計 93 報.

講演: 招待セミナー 12. 国際会議: 口頭発表 12, ポスター発表 6. 国内会議: 口頭発表 0, ポスター発表 0.
合計 30.

アウトリーチ活動: 講演 8. メディア出演 3. 執筆 3. 取材 7. その他 2.
合計 23.

出版物

著書

1. 武田紘樹, “広大すぎる宇宙の謎を解き明かす 14 歳からの宇宙物理学”, KADOKAWA, 2023-03-20, 192 頁.
2. 武田紘樹, “読んだ瞬間に宇宙の構造が見えてくる宇宙物理学事典 (韓国語翻訳版)”, ボーナス, 2024-07-10, 200 頁.

論文

1. Daiki Watarai, Atsushi Nishizawa, Hiroki Takeda, Hayato Imafuku, Kipp Cannon, “Observational constraints on the nonlinear regime of gravity with a parametrized beyond-GR gravitational waveform model”, arXiv:2509.17592.
2. Tomoya Suzuguchi, Hidetoshi Omiya, Hiroki Takeda, “Possibility of Multi-Messenger Observations of Quasi-Periodic Eruptions with X-rays and Gravitational Waves”, arXiv:2505.10488.
3. Hiroki Takeda, Takahiro Tanaka, “Quantum decoherence of gravitational waves”, Phys. Rev. D, 111, 104080 (2025). arXiv:2502.18560; DOI: 10.1103/PhysRevD.111.104080
4. Hayato Imafuku, Hiroki Takeda, Atsushi Nishizawa, Daiki Watarai, Kipp Cannon, “Statistical biases in parametrized searches for gravitational-wave polarizations”, Phys. Rev. D, 112, 024028 (2025). arXiv:2501.16788; DOI: 10.1103/25ym-x87g
5. Hiroki Takeda, Takahiro Tanaka, “Strong lensing of gravitational waves with modified propagation”, Phys. Rev. D, 110, 104050 (2024). arXiv:2404.10809; DOI: 10.1103/PhysRevD.110.104050
6. Hiroki Takeda, Shinji Tsujikawa, Atsushi Nishizawa, “Gravitational-wave constraints on scalar-tensor gravity from a neutron star and black-hole binary GW200115”, Phys. Rev. D, 109, 104072 (2024). arXiv:2311.09281; DOI: 10.1103/PhysRevD.109.104072
7. Yusuke Manita, Hiroki Takeda, Katsuki Aoki, Tomohiro Fujita, Shinji Mukohyama, “Exploring the spin of ultralight dark matter with gravitational wave detectors”, Phys. Rev. D, 109, 095012 (2024). arXiv:2310.10646; DOI: 10.1103/PhysRevD.109.095012

8. Hiroki Takeda, Yusuke Manita, Hidetoshi Omiya, Takahiro Tanaka, “Scalar polarization window in gravitational-wave signals” , PTEP, 2023, 073E01 (2023). arXiv:2304.14430; DOI: 10.1093/ptep/ptad082
9. Hiroki Takeda, Soichiro Morisaki, Atsushi Nishizawa, “Search for scalar-tensor mixed polarization modes of gravitational waves” , Phys. Rev. D, 105, 084019 (2022). arXiv:2105.00253; DOI: 10.1103/PhysRevD.105.084019
10. Hiroki Takeda, Soichiro Morisaki, Atsushi Nishizawa, “Pure polarization test of GW170814 and GW170817 using waveforms consistent with modified theories of gravity” , Phys. Rev. D, 103, 064037 (2021). arXiv:2010.14538; DOI: 10.1103/PhysRevD.103.064037
11. Kiwamu Izumi, Norichika Sago, Tomotada Akutsu, Masaki Ando, Ryuichi Fujita, Kenji Fukunabe, Naoki Kita, Masato Kobayashi, Kentaro Komori, Yuta Michimura, Mitsuru Musha, Koji Nagano, Hiroyuki Nakano, Hiroki Okasaka, Naoki Seto, Ayaka Shoda, Hideyuki Tagoshi, Satoru Takano, Hiroki Takeda, Takahiro Tanaka, Kei Yamada, “The current status of contribution activities in Japan for LISA” , Progress of Theoretical and Experimental Physics, 2021, 05A106 (2020). arXiv:<https://academic.oup.com/ptep/article-pdf/2021/5/05A106/37953039/ptaa124.pdf>; DOI: 10.1093/ptep/ptaa124
12. Koji Nagano, Hiroki Takeda, Yuta Michimura, Takashi Uchiyama, Masaki Ando, “Demonstration of a dual-pass differential Fabry-Perot interferometer for future interferometric space gravitational wave antennas” , Class. Quant. Grav., 38, 085018 (2021). arXiv:2008.12462; DOI: 10.1088/1361-6382/abed60
13. Tomotada Akutsu, Fabián Erasmo Peña Arellano, Ayaka Shoda, Yoshinori Fujii, Koki Okutomi, Mark Andrew Barton, Ryutaro Takahashi, Kentaro Komori, Naoki Aritomi, Tomofumi Shimoda, Satoru Takano, Hiroki Takeda, Enzo Nicolas Tapia San Martin, Ryohei Kozu, Bungo Ikenoue, Yoshiyuki Obuchi, Mitsuhiro Fukushima, Yoichi Aso, Yuta Michimura, Osamu Miyakawa, Masahiro Kamiizumi, “Compact integrated optical sensors and electromagnetic actuators for vibration isolation systems in the gravitational-wave detector KAGRA” , Rev. Sci. Instrum., 91, 115001 (2020). arXiv:2007.09571; DOI: 10.1063/5.0022242
14. Yuta Michimura, Kentaro Komori, Yutaro Enomoto, Koji Nagano, Atsushi Nishizawa, Eiichi Hirose, Matteo Leonardi, Eleonora Capocasa, Naoki Aritomi, Yuhang Zhao, Raffaele Flaminio, Takafumi Ushiba, Tomohiro Yamada, Li-Wei Wei, Hiroki Takeda, Satoshi Tanioka, Masaki Ando, Kazuhiro Yamamoto, Kazuhiro Hayama, Sadakazu Haino, Kentaro Somiya, “Prospects for improving the sensitivity of the cryogenic gravitational wave detector KAGRA” , Phys. Rev. D, 102, 022008 (2020). arXiv:2006.08970; DOI: 10.1103/PhysRevD.102.022008
15. Tomoya Kinugawa, Hiroki Takeda, Ataru Tanikawa, Hiroya Yamaguchi, “Probe for Type Ia Supernova Progenitor in Decihertz Gravitational Wave Astronomy” , Astrophys. J., 938, 52 (2022). arXiv:1910.01063; DOI: 10.3847/1538-4357/ac9135
16. Hiroki Takeda, Atsushi Nishizawa, Koji Nagano, Yuta Michimura, Kentaro Komori, Masaki Ando, Kazuhiro Hayama, “Prospects for gravitational-wave polarization tests from compact binary mergers with future ground-based detectors” , Phys. Rev. D, 100, 042001 (2019). arXiv:1904.09989; DOI: 10.1103/PhysRevD.100.042001

17. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, Kazuhiro Hayama, “Polarization test of gravitational waves from compact binary coalescences” , Phys. Rev. D, 98, 022008 (2018). arXiv:1806.02182; DOI: 10.1103/PhysRevD.98.022008
18. Yuta Michimura, Kentaro Komori, Atsushi Nishizawa, Hiroki Takeda, Koji Nagano, Yutaro Enomoto, Kazuhiro Hayama, Kentaro Somiya, Masaki Ando, “Particle swarm optimization of the sensitivity of a cryogenic gravitational wave detector” , Phys. Rev. D, 97, 122003 (2018). arXiv:1804.09894; DOI: 10.1103/PhysRevD.97.122003
19. Kentaro Komori, Yutaro Enomoto, Hiroki Takeda, Yuta Michimura, Kentaro Somiya, Masaki Ando, Stefan W. Ballmer, “Direct approach for the fluctuation-dissipation theorem under nonequilibrium steady-state conditions”, Phys. Rev. D, 97, 102001 (2018). arXiv:1803.00585; DOI: 10.1103/PhysRevD.97.102001
20. Yuta Michimura, Tomofumi Shimoda, Takahiro Miyamoto, Ayaka Shoda, Koki Okutomi, Yoshinori Fujii, Hiroki Tanaka, Mark A. Barton, Ryutaro Takahashi, Yoichi Aso, Tomotada Akutsu, Masaki Ando, Yutaro Enomoto, Raffaele Flaminio, Kazuhiro Hayama, Eiichi Hirose, Yuki Inoue, Takaaki Kajita, Masahiro Kamiizumi, Seiji Kawamura, Keiko Kokeyama, Kentaro Komori, Rahul Kumar, Osamu Miyakawa, Koji Nagano, Masayuki Nakano, Naoko Ohishi, Ching Pin Ooi, Fabián Erasmo Peña Arellano, Yoshio Saito, Katsuhiko Shimode, Kentaro Somiya, Hiroki Takeda, Takayuki Tomaru, Takashi Uchiyama, Takafumi Ushiba, Kazuhiro Yamamoto, Takaaki Yokozawa, Hirotaka Yuzurihara, “Mirror actuation design for the interferometer control of the KAGRA gravitational wave telescope” , Class. Quant. Grav., 34, 225001 (2017). arXiv:1709.02574; DOI: 10.1088/1361-6382/aa90e3

コラボレーション論文

1. LIGO Scientific, VIRGO, KAGRA Collaboration (including Hiroki Takeda), “GWTC-4.0: Constraints on the Cosmic Expansion Rate and Modified Gravitational-wave Propagation” , arXiv:2509.04348.
2. LIGO Scientific, VIRGO, KAGRA Collaboration (including Hiroki Takeda), “Directed searches for gravitational waves from ultralight vector boson clouds around merger remnant and galactic black holes during the first part of the fourth LIGO-Virgo-KAGRA observing run” , arXiv:2509.07352.
3. LIGO Scientific, VIRGO, Kagra Collaboration (including Hiroki Takeda), “GW230814: investigation of a loud gravitational-wave signal observed with a single detector”, arXiv:2509.07348.
4. LIGO Scientific, VIRGO, KAGRA Collaboration (including Hiroki Takeda), “Black Hole Spectroscopy and Tests of General Relativity with GW250114” , arXiv:2509.08099.
5. KAGRA, Virgo, LIGO Scientific Collaboration (including Hiroki Takeda), “GW250114: Testing Hawking’s Area Law and the Kerr Nature of Black Holes” , Phys. Rev. Lett., 135, 111403 (2025). arXiv:2509.08054; DOI: 10.1103/kw5g-d732
6. LIGO Scientific, VIRGO, KAGRA Collaboration (including Hiroki Takeda), “GWTC-4.0: Population Properties of Merging Compact Binaries” , arXiv:2508.18083.

7. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “GWTC-4.0: Updating the Gravitational-Wave Transient Catalog with Observations from the First Part of the Fourth LIGO-Virgo-KAGRA Observing Run” , arXiv:2508.18082.
8. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “GWTC-4.0: Methods for Identifying and Characterizing Gravitational-wave Transients” , arXiv:2508.18081.
9. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “GWTC-4.0: An Introduction to Version 4.0 of the Gravitational-Wave Transient Catalog” , arXiv:2508.18080.
10. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “Open Data from LIGO, Virgo, and KAGRA through the First Part of the Fourth Observing Run” , arXiv:2508.18079.
11. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “Upper Limits on the Isotropic Gravitational-Wave Background from the first part of LIGO, Virgo, and KAGRA’s fourth Observing Run” , arXiv:2508.20721.
12. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “GW231123: a Binary Black Hole Merger with Total Mass $190\text{--}265\ M_{\odot}$ ” , arXiv:2507.08219.
13. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “All-sky search for short gravitational-wave bursts in the first part of the fourth LIGO-Virgo-KAGRA observing run” , arXiv:2507.12374.
14. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “All-sky search for long-duration gravitational-wave transients in the first part of the fourth LIGO-Virgo-KAGRA Observing run” , arXiv:2507.12282.
15. LIGO Scientific, VIRGO, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for Continuous Gravitational Waves from Known Pulsars in the First Part of the Fourth LIGO-Virgo-KAGRA Observing Run” , *Astrophys. J.*, 983, 99 (2025). arXiv:2501.01495; DOI: 10.3847/1538-4357/adb3a0
16. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “A Search Using GEO600 for Gravitational Waves Coincident with Fast Radio Bursts from SGR 1935+2154” , *Astrophys. J.*, 977, 255 (2024). arXiv:2410.09151; DOI: 10.3847/1538-4357/ad8de0
17. LIGO Scientific, KAGRA, VIRGO Collaboration (including [Hiroki Takeda](#)), “Search for Gravitational Waves Emitted from SN 2023ixf” , *Astrophys. J.*, 985, 183 (2025). arXiv:2410.16565; DOI: 10.3847/1538-4357/adc681
18. LIGO Scientific, Virgo, KAGRA, Swift, Swift-BAT/GUANO Collaboration (including [Hiroki Takeda](#)), “Swift-BAT GUANO Follow-up of Gravitational-wave Triggers in the Third LIGO – Virgo – KAGRA Observing Run” , *Astrophys. J.*, 980, 207 (2025). arXiv:2407.12867; DOI: 10.3847/1538-4357/ad9749
19. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Observation of Gravitational Waves from the Coalescence of a $2.5 - 4.5\ M_{\odot}$ Compact Object and a Neutron Star” , *Astrophys. J. Lett.*, 970, L34 (2024). arXiv:2404.04248; DOI: 10.3847/2041-8213/ad5beb
20. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Ultralight vector

- dark matter search using data from the KAGRA O3GK run” , Phys. Rev. D, 110, 042001 (2024). arXiv:2403.03004; DOI: 10.1103/PhysRevD.110.042001
21. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “Search for Eccentric Black Hole Coalescences during the Third Observing Run of LIGO and Virgo”, *Astrophys. J.*, 973, 132 (2024). arXiv:2308.03822; DOI: 10.3847/1538-4357/ad65ce
 22. Fermi Gamma-Ray Burst Monitor Team, LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “A Joint Fermi-GBM and Swift-BAT Analysis of Gravitational-wave Candidates from the Third Gravitational-wave Observing Run” , *Astrophys. J.*, 964, 149 (2024). arXiv:2308.13666; DOI: 10.3847/1538-4357/ad1eed
 23. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “Search for Gravitational-lensing Signatures in the Full Third Observing Run of the LIGO – Virgo Network” , *Astrophys. J.*, 970, 191 (2024). arXiv:2304.08393; DOI: 10.3847/1538-4357/ad3e83
 24. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “Open Data from the Third Observing Run of LIGO, Virgo, KAGRA, and GEO” , *Astrophys. J. Suppl.*, 267, 29 (2023). arXiv:2302.03676; DOI: 10.3847/1538-4365/acdc9f
 25. KAGRA Collaboration (including Hiroki Takeda), “Overview of KAGRA : Data transfer and management” , *PTEP*, 2023, 10A102 (2023). DOI: 10.1093/ptep/ptad112
 26. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “Search for subsolar-mass black hole binaries in the second part of Advanced LIGO’s and Advanced Virgo’s third observing run” , *Mon. Not. Roy. Astron. Soc.*, 524, 5984–5992 (2023). arXiv:2212.01477; DOI: 10.1093/mnras/stad588
 27. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “Search for Gravitational-wave Transients Associated with Magnetar Bursts in Advanced LIGO and Advanced Virgo Data from the Third Observing Run” , *Astrophys. J.*, 966, 137 (2024). arXiv:2210.10931; DOI: 10.3847/1538-4357/ad27d3
 28. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “Model-based Cross-correlation Search for Gravitational Waves from the Low-mass X-Ray Binary Scorpius X-1 in LIGO O3 Data” , *Astrophys. J. Lett.*, 941, L30 (2022). arXiv:2209.02863; DOI: 10.3847/2041-8213/aca1b0
 29. KAGRA Collaboration (including Hiroki Takeda), “Noise subtraction from KAGRA O3GK data using Independent Component Analysis” , *Class. Quant. Grav.*, 40, 085015 (2023). arXiv:2206.05785; DOI: 10.1088/1361-6382/acc0cb
 30. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “Search for continuous gravitational wave emission from the Milky Way center in O3 LIGO-Virgo data” , *Phys. Rev. D*, 106, 042003 (2022). arXiv:2204.04523; DOI: 10.1103/PhysRevD.106.042003
 31. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “First joint observation by the underground gravitational-wave detector KAGRA with GEO 600” , *PTEP*, 2022, 063F01 (2022). arXiv:2203.01270; DOI: 10.1093/ptep/ptac073
 32. KAGRA Collaboration (including Hiroki Takeda), “Performance of the KAGRA detector during the first joint observation with GEO 600 (O3GK)” , *PTEP*, 2023, 10A101 (2023). arXiv:2203.07011; DOI: 10.1093/ptep/ptac093

33. LIGO Scientific, Virgo, KAGRA, CHIME/FRB Collaboration (including [Hiroki Takeda](#)), “Search for Gravitational Waves Associated with Fast Radio Bursts Detected by CHIME/FRB during the LIGO – Virgo Observing Run O3a” , *Astrophys. J.*, 955, 155 (2023). arXiv:2203.12038; DOI: 10.3847/1538-4357/acd770
34. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “All-sky search for continuous gravitational waves from isolated neutron stars using Advanced LIGO and Advanced Virgo O3 data” , *Phys. Rev. D*, 106, 102008 (2022). arXiv:2201.00697; DOI: 10.1103/PhysRevD.106.102008
35. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “All-sky search for continuous gravitational waves from isolated neutron stars using Advanced LIGO and Advanced Virgo O3 data” , *Phys. Rev. D*, 106, 102008 (2022). arXiv:2201.00697; DOI: 10.1103/PhysRevD.106.102008
36. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for gravitational waves from Scorpius X-1 with a hidden Markov model in O3 LIGO data” , *Phys. Rev. D*, 106, 062002 (2022). arXiv:2201.10104; DOI: 10.1103/PhysRevD.106.062002
37. KAGRA Collaboration (including [Hiroki Takeda](#)), “The Current Status and Future Prospects of KAGRA, the Large-Scale Cryogenic Gravitational Wave Telescope Built in the Kamioka Underground” , *Galaxies*, 10, 63 (2022). DOI: 10.3390/galaxies10030063
38. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Tests of General Relativity with GWTC-3” , arXiv:2112.06861.
39. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Narrowband Searches for Continuous and Long-duration Transient Gravitational Waves from Known Pulsars in the LIGO-Virgo Third Observing Run” , *Astrophys. J.*, 932, 133 (2022). arXiv:2112.10990; DOI: 10.3847/1538-4357/ac6ad0
40. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Population of Merging Compact Binaries Inferred Using Gravitational Waves through GWTC-3” , *Phys. Rev. X*, 13, 011048 (2023). arXiv:2111.03634; DOI: 10.1103/PhysRevX.13.011048
41. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for Gravitational Waves Associated with Gamma-Ray Bursts Detected by Fermi and Swift during the LIGO – Virgo Run O3b” , *Astrophys. J.*, 928, 186 (2022). arXiv:2111.03608; DOI: 10.3847/1538-4357/ac532b
42. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “GWTC-3: Compact Binary Coalescences Observed by LIGO and Virgo during the Second Part of the Third Observing Run” , *Phys. Rev. X*, 13, 041039 (2023). arXiv:2111.03606; DOI: 10.1103/PhysRevX.13.041039
43. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Constraints on the Cosmic Expansion History from GWTC – 3” , *Astrophys. J.*, 949, 76 (2023). arXiv:2111.03604; DOI: 10.3847/1538-4357/ac74bb
44. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Searches for Gravitational Waves from Known Pulsars at Two Harmonics in the Second and Third LIGO-Virgo Observing Runs” , *Astrophys. J.*, 935, 1 (2022). arXiv:2111.13106; DOI: 10.3847/1538-

45. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “All-sky search for gravitational wave emission from scalar boson clouds around spinning black holes in LIGO O3 data” , *Phys. Rev. D*, 105, 102001 (2022). arXiv:2111.15507; DOI: 10.1103/PhysRevD.105.102001
46. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “All-sky, all-frequency directional search for persistent gravitational waves from Advanced LIGO’s and Advanced Virgo’s first three observing runs” , *Phys. Rev. D*, 105, 122001 (2022). arXiv:2110.09834; DOI: 10.1103/PhysRevD.105.122001
47. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for continuous gravitational waves from 20 accreting millisecond x-ray pulsars in O3 LIGO data” , *Phys. Rev. D*, 105, 022002 (2022). arXiv:2109.09255; DOI: 10.1103/PhysRevD.105.022002
48. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for Substellar-Mass Binaries in the First Half of Advanced LIGO’s and Advanced Virgo’s Third Observing Run” , *Phys. Rev. Lett.*, 129, 061104 (2022). arXiv:2109.12197; DOI: 10.1103/PhysRevLett.129.061104
49. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “All-sky search for short gravitational-wave bursts in the third Advanced LIGO and Advanced Virgo run” , *Phys. Rev. D*, 104, 122004 (2021). arXiv:2107.03701; DOI: 10.1103/PhysRevD.104.122004
50. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “All-sky search for long-duration gravitational-wave bursts in the third Advanced LIGO and Advanced Virgo run” , *Phys. Rev. D*, 104, 102001 (2021). arXiv:2107.13796; DOI: 10.1103/PhysRevD.104.102001
51. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Observation of Gravitational Waves from Two Neutron Star – Black Hole Coalescences” , *Astrophys. J. Lett.*, 915, L5 (2021). arXiv:2106.15163; DOI: 10.3847/2041-8213/ac082e
52. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Searches for Continuous Gravitational Waves from Young Supernova Remnants in the Early Third Observing Run of Advanced LIGO and Virgo” , *Astrophys. J.*, 921, 80 (2021). arXiv:2105.11641; DOI: 10.3847/1538-4357/ac17ea
53. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Constraints on dark photon dark matter using data from LIGO’s and Virgo’s third observing run” , *Phys. Rev. D*, 105, 063030 (2022). arXiv:2105.13085; DOI: 10.1103/PhysRevD.105.063030
54. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for intermediate-mass black hole binaries in the third observing run of Advanced LIGO and Advanced Virgo” , *Astron. Astrophys.*, 659, A84 (2022). arXiv:2105.15120; DOI: 10.1051/0004-6361/202141452
55. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Constraints from LIGO O3 Data on Gravitational-wave Emission Due to R-modes in the Glitching Pulsar PSR J0537 – 6910” , *Astrophys. J.*, 922, 71 (2021). arXiv:2104.14417; DOI: 10.3847/1538-4357/ac0d52

56. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for anisotropic gravitational-wave backgrounds using data from Advanced LIGO and Advanced Virgo’s first three observing runs” , *Phys. Rev. D*, 104, 022005 (2021). arXiv:2103.08520; DOI: 10.1103/PhysRevD.104.022005
57. KAGRA Collaboration (including [Hiroki Takeda](#)), “Vibration isolation systems for the beam splitter and signal recycling mirrors of the KAGRA gravitational wave detector” , *Class. Quant. Grav.*, 38, 065011 (2021). DOI: 10.1088/1361-6382/abd922
58. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Upper limits on the isotropic gravitational-wave background from Advanced LIGO and Advanced Virgo’s third observing run” , *Phys. Rev. D*, 104, 022004 (2021). arXiv:2101.12130; DOI: 10.1103/PhysRevD.104.022004
59. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Constraints on Cosmic Strings Using Data from the Third Advanced LIGO – Virgo Observing Run” , *Phys. Rev. Lett.*, 126, 241102 (2021). arXiv:2101.12248; DOI: 10.1103/PhysRevLett.126.241102
60. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Diving below the Spin-down Limit: Constraints on Gravitational Waves from the Energetic Young Pulsar PSR J0537-6910” , *Astrophys. J.*, 913, L27 (2021). arXiv:2012.12926; DOI: 10.3847/2041-8213/abffcd
61. KAGRA Collaboration (including [Hiroki Takeda](#)), “Overview of KAGRA: Calibration, detector characterization, physical environmental monitors, and the geophysics interferometer” , *PTEP*, 2021, 05A102 (2021). arXiv:2009.09305; DOI: 10.1093/ptep/ptab018
62. KAGRA Collaboration (including [Hiroki Takeda](#)), “Overview of KAGRA : KAGRA science” , arXiv:2008.02921.
63. KAGRA Collaboration (including [Hiroki Takeda](#)), “Overview of KAGRA: Detector design and construction history” , *PTEP*, 2021, 05A101 (2021). arXiv:2005.05574; DOI: 10.1093/ptep/ptaa125
64. LISA Collaboration (including [Hiroki Takeda](#)), “Prospects for Fundamental Physics with LISA” , *Gen. Rel. Grav.*, 52, 81 (2020). arXiv:2001.09793; DOI: 10.1007/s10714-020-02691-1
65. KAGRA Collaboration (including [Hiroki Takeda](#)), “An arm length stabilization system for KAGRA and future gravitational-wave detectors” , *Class. Quant. Grav.*, 37, 035004 (2020). arXiv:1910.00955; DOI: 10.1088/1361-6382/ab5c95
66. KAGRA Collaboration (including [Hiroki Takeda](#)), “Application of independent component analysis to the iKAGRA data” , *PTEP*, 2020, 053F01 (2020). arXiv:1908.03013; DOI: 10.1093/ptep/ptaa056
67. KAGRA Collaboration (including [Hiroki Takeda](#)), “Vibration isolation system with a compact damping system for power recycling mirrors of KAGRA” , *Class. Quant. Grav.*, 36, 095015 (2019). arXiv:1901.03053; DOI: 10.1088/1361-6382/ab0fcb
68. KAGRA Collaboration (including [Hiroki Takeda](#)), “First cryogenic test operation of underground km-scale gravitational-wave observatory KAGRA” , *Class. Quant. Grav.*, 36, 165008 (2019). arXiv:1901.03569; DOI: 10.1088/1361-6382/ab28a9
69. KAGRA Collaboration (including [Hiroki Takeda](#)), “KAGRA: 2.5 Generation Interferometric

- Gravitational Wave Detector” , Nature Astron., 3, 35–40 (2019). arXiv:1811.08079; DOI: 10.1038/s41550-018-0658-y
70. KAGRA Collaboration (including Hiroki Takeda), “Construction of KAGRA: an Underground Gravitational Wave Observatory” , PTEP, 2018, 013F01 (2018). arXiv:1712.00148; DOI: 10.1093/ptep/ptx180
71. LIGO Scientific, Virgo, KAGRA Collaboration (including Hiroki Takeda), “Prospects for observing and localizing gravitational-wave transients with Advanced LIGO, Advanced Virgo and KAGRA” , Living Rev. Rel., 19, 1 (2016). arXiv:1304.0670; DOI: 10.1007/s41114-020-00026-9

発表

招待講演

1. Hiroki Takeda, “High-Frequency Gravitational Waves and Decoherence” , One day workshop on High Frequency Gravitational waves, KEK, Tsukuba, Japan, 2025 年 8 月.
2. Hiroki Takeda, “Can gravitational waves keep quantum nature?” , Colloquium at Theoretical Quantum Physics, Gravitation and Cosmology at Kyushu University, Fukuoka, Japan, 2025 年 6 月.
3. Hiroki Takeda, “Can gravitational waves retain quantum nature?” , Mini workshop on gravity and cosmology, YITP, Kyoto, Japan, 2025 年 3 月.
4. Hiroki Takeda, “Gravity Meets Quantum Measurements: Testing General Relativity with Gravitational Waves” , 3rd Joint Workshop on General Relativity and Cosmology, Saitama, Japan, 2025 年 3 月.
5. Hiroki Takeda, “Testing Gravity through Gravitational Wave Observations” , Bottom-up particle and gravity fusion theory and cosmological observations, Niigata University, Niigata, Japan, 2024 年 12 月.
6. Hiroki Takeda, “Testing gravity through gravitational-wave observation of compact binary mergers” , Data Oriented Astronomy 2024, The Institute of Statistical Mathematics, Tokyo, Japan, 2024 年 10 月.
7. Hiroki Takeda, “Observations of gravitational waves from compact binary mergers” , The First Young Researchers’ Workshop on Multi-Messenger Astronomy, Tokyo, Japan, 2024 年 3 月.
8. Hiroki Takeda, “Probing scalar polarizations in gravitational waves” , GW research exchange meeting, online, 2023 年 6 月.
9. Hiroki Takeda, “Scalar polarization window in gravitational-wave signals from compact binary coalescences” , Seminar, Waseda University, Tokyo, Japan, 2023 年 5 月.
10. Hiroki Takeda, “Polarization tests by DECIGO” , 21st DECIGO workshop, online, 2022 年 12 月.
11. Hiroki Takeda, “Consistent search for polarization modes of gravitational waves from generation to detection” , Observational Cosmology Summer Workshop in 2022, Hamamatsu,

Japan, 2022 年 8 月.

12. Hiroki Takeda, “Polarization test of gravitational waves from compact binary coalescences”, Seminar at Institute of Particle Physics and Astrophysics, School of Physics, Huazhong University of Science and Technology, Wuhan, China, 2018 年 11 月.

国際会議・口頭発表

1. Hiroki Takeda, Takahiro Tanaka, “Quantum decoherence of gravitational waves”, 24th International Conference on General Relativity 16th Edoardo Amaldi Conference on Gravitational Waves, Glasgow, UK, 2025 年 7 月.
2. Hiroki Takeda, Takahiro Tanaka, “Quantum decoherence of gravitational waves”, 15th annual conference on Relativistic Quantum information (North), Università degli Studi Federico II, Naples, Italy, 2025 年 6 月.
3. Hiroki Takeda, Shinji Tsujikawa, Atsushi Nishizawa, “Gravitational-wave constraints on scalar-tensor gravity from a black-hole and neutron star binary”, The 32th Workshop on General Relativity and Gravitation in Japan – JGRG32, Nagoya, Japan, 2023 年 11 月.
4. Hiroki Takeda, Yusuke Manita, Hidetoshi Omiya, Takahiro Tanaka, “Scalar polarizations window in gravitational wave signals”, 14th Edoardo Amaldi Conference on Gravitational Waves, online, 2023 年 7 月.
5. Hiroki Takeda, Soichiro Morisaki, Atsushi Nishizawa, “Search for mixture of scalar-tensor polarizations of gravitational waves”, 23rd International Conference on General Relativity and Gravitation, Beijing, China, 2022 年 7 月.
6. Hiroki Takeda, Soichiro Morisaki, Atsushi Nishizawa, “Scalar-tensor mixed polarization search for gravitational waves from compact binary coalescences”, Gravitational Wave Physics and Astronomy Workshop 2021, Hannover, Germany, 2021 年 12 月.
7. Hiroki Takeda, Soichiro Morisaki, Atsushi Nishizawa, “Testing gravity theory with gravitational wave polarizations”, Innovative Area “Gravitational Wave Physics and Astronomy: Genesis” Group A Winter Camp, Kyoto, Japan, 2021 年 1 月.
8. Hiroki Takeda, Atsushi Nishizawa, Soichiro Morisaki, “Polarization tests of GW170814 and GW170817 using waveforms consistent with alternative theories of gravity”, 7th KAGRA International Workshop, online (Taiwan in-person), 2020 年 12 月.
9. Hiroki Takeda, Tomoya Kinugawa, Hiroya Yamaguchi, “Ability of DECIGO to constrain the Type Ia supernova progenitor system”, Gravitational Wave Physics and Astronomy Workshop 2019, Tokyo, Japan, 2019 年 10 月.
10. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, Kazuhiro Hayama, “Probing nontensorial polarization of inspiral gravitational waves with the third-generation detectors”, JGRG28, Tokyo, Japan, 2018 年 11 月.
11. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, Kazuhiro Hayama, “Polarization test of gravitational waves from compact binary coalescences”, 15th Marcel Grossmann Meeting, Rome, Italy, 2018 年 7 月.
12. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki

Ando, Kazuhiro Hayama, “Parameter estimation with inspiral waveforms of compact binary coalescences including nontensorial gravitational waves polarizations”, 19th KAGRA face-to-face meeting, Osaka, Japan, 2018 年 5 月.

国際会議・ポスター発表

1. Hiroki Takeda, Takahiro Tanaka, “Strong lensing of gravitational waves with modified propagation”, COSMO’24, Kyoto, Japan, 2024 年 10 月.
2. Hiroki Takeda, Takahiro Tanaka, “Strong gravitational lensing of gravitational waves with modified propagation”, LIGO-Virgo-KAGRA meeting, Barcelona, Spain, 2024 年 9 月.
3. Hiroki Takeda, Yusuke Manita, Hidetoshi Omiya, Takahiro Tanaka, “Scalar gravitational wave and fifth force”, 28th KAGRA Face to Face Meeting, online, 2022 年 12 月.
4. Hiroki Takeda, Atsushi Nishizawa, Soichiro Morisaki, “Search for scalar-tensor mixed polarization of gravitational waves”, 14th Edoardo Amaldi Conference on Gravitational Waves, online, 2021 年 7 月.
5. Hiroki Takeda, Atsushi Nishizawa, Soichiro Morisaki, “Tests of alternative theories of gravity through gravitational-wave polarization modes”, 26th Face to Face Meeting, online, 2020 年 12 月.
6. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, Kazuhiro Hayama, “Prospects for gravitational-wave polarization test from compact binary coalescences with next-generation detectors”, GR22 + Amaldi13, Valencia, Spain, 2019 年 7 月.

アウトリーチ活動

講演

1. “宇宙、まだ分かってないこと”, 関東 SSH 指定 7 女子高校等研究交流会, 講演, 2025 年 7 月.
2. “何を考えて、何を考えてこなかったか 大学進学から始める非効率のススメ”, 横浜国立大学博士学生支援, 講演, 2025 年 2 月.
3. “宇宙の謎の前にジェンダーの枠を乗り越えて～若手物理学者と考える女性の理系進路選択～”, ふらっと市民セミナー, 講演, 2024 年 7 月.
4. “時空のさざ波で迫る宇宙の深淵 重力波の生成から最先端技術の結晶が成し遂げる検出まで”, リカレントラーニング講座, 講演, 2023 年 12 月.
5. “時空のさざ波で迫る宇宙の深淵”, 芝浦工業大学柏中学高等学校, 講演, 2023 年 12 月.
6. “一般相対性理論の検証と重力波観測”, KagaQ 月夜サイエンス, 講演, 2023 年 11 月.
7. “宇宙の謎を重力で覗こう”, 女子高生のための京都大学理学部案内, 講演, 2023 年 3 月.
8. “重力波で覗く宇宙”, 箕面自由学園高等学校, 講演, 2022 年 8 月.

出演

1. “研究者のツイッター活用戦略”，京都大学白眉センター座談会，ゲスト登壇，2023 年 11 月．
2. “アシタノカレッジ”，TBS ラジオ，ゲスト生出演，2023 年 2 月．
3. “京いちにち”，NHK 京都，ゲスト生出演，2022 年 7 月．

執筆

1. “「水星の空は真っ黒」という衝撃事実…宇宙物理学者が解説する「小学生にもわかる地球の空が青い理由」”，プレジデントオンライン，執筆記事掲載，2025 年 2 月．
2. “子どもの人気職業「研究者」の知られざる経済事情”，プレジデントオンライン，執筆記事掲載，2024 年 4 月．
3. “0.000001 秒未満でバラバラに…「ブラックホールに人が落ちるとどうなるか」研究者が高頻度でされる質問に丁寧回答”，プレジデントオンライン，執筆記事掲載，2023 年 12 月．

取材

1. “序破急”，朝日新聞朝刊，取材記事掲載，2023 年 10 月．
2. “グッとグルメ”，朝日新聞夕刊，取材記事掲載，2023 年 10 月．
3. “水説”，毎日新聞朝刊，取材記事掲載，2023 年 10 月．
4. “プレジデントファミリー秋号”，プレジデント社，取材記事掲載，2023 年 9 月．
5. “47NEWS”，共同通信社，取材記事掲載，2023 年 5 月．
6. “ニュースの門”，読売新聞，取材記事掲載，2023 年 4 月．
7. “憂楽帳”，毎日新聞，取材記事掲載，2022 年 6 月．

その他

1. “博士アイドル化計画 最終オーディション”，秋葉原 UDX イベント，発案・企画，2023 年 10 月．
2. “4 コマ宇宙”，YouTube チャンネル，総視聴回数 278,000，2022 年 2 月．