

# 履歴書

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### 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

- |      |  |
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| 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,<br>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,<br>総額 1432 万円.             |
| 2022-2026 | 日本学術振興会 若手研究 研究代表者,<br>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,<br>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,<br>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,<br>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,<br>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,<br>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.

## 所属団体

- 2020 KAGRA Scientific Congress 学生代表.
- 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 18 報, 共著論文 57 報, 合計 77 報.

講演: 招待セミナー 9. 国際会議: 口頭発表 10, 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 25.

アウトリーチ活動: 講演 7. メディア出演 3. 執筆 3. 取材 7. その他 2.  
合計 22.

## 出版物

### 著書

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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,

## 論文

1. Hiroki Takeda, Takahiro Tanaka, “Quantum decoherence of gravitational waves”, arXiv:2502.18560.
2. Hayato Imafuku, Hiroki Takeda, Atsushi Nishizawa, Daiki Watarai, Kipp Cannon, “Statistical biases in parameterized searches for gravitational-wave polarizations”, arXiv:2501.16788.
3. 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
4. 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
5. 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
6. 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
7. 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
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9. 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
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11. 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, Os-

- amu 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
12. 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
  13. 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
  14. 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
  15. 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
  16. 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
  17. 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
  18. 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

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2. 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
3. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for gravitational waves emitted from SN 2023ixf” , arXiv:2410.16565.
4. 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
5. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Observation of Gravitational Waves from the Coalescence of a 2.5 – 4.5 M $\oplus$  Compact Object and a Neutron Star” , Astrophys. J. Lett., 970, L34 (2024). arXiv:2404.04248; DOI: 10.3847/2041-8213/ad5beb
6. 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
7. 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
8. 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
9. 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
10. 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
11. KAGRA Collaboration (including [Hiroki Takeda](#)), “Overview of KAGRA : Data transfer and management” , PTEP, 2023, 10A102 (2023). DOI: 10.1093/ptep/ptad112
12. 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

13. 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
14. 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
15. 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
16. 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
17. 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
18. 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
19. 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
20. 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
21. 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
22. 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
23. 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
24. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Tests of General Relativity with GWTC-3” , arXiv:2112.06861.
25. 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
26. 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
  27. 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
  28. 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
  29. 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
  30. 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: 10.3847/1538-4357/ac6acf
  31. 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
  32. 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
  33. 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
  34. LIGO Scientific, Virgo, KAGRA Collaboration (including [Hiroki Takeda](#)), “Search for Subsolar-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
  35. 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
  36. 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
37. 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
  38. 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
  39. 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
  40. 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
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## アウトリーチ活動

### 講演

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2. “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.
3. “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.
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