Curriculum Vitae
Hiroki Takeda

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Date of birth: October 5, 1993

Education

2018-2021 Doctor of Philosophy, University of Tokyo
Tests of Alternative Theories of Gravity through Gravitational-Wave Polarizations, Completion Date: March, 2021

2016-2018 Master of Science in Physics, University of Tokyo
Development of Monolithic Optical System for Lorentz Invariance Test, Completion Date: March, 2018

2012-2016 Bachelor of Science in Physics, Yokohama National University
Proposal of Rayleigh Scattering Length Measurement in Liquid Xenon, Completion Date: March, 2016

Employment

2021-present	JSPS Research Fellow (PD) Department of Physics, Kyoto University
2018-2021	JSPS Research Fellow (DC1) Department of Physics, University of Tokyo
2016-2021	Advanced Leading Graduate Course for Photon Science student Department of Physics, University of Tokyo

Awards

2021	Best Student Presentation Award Physical Society of Japan
2015	Academic Excellence Award Physics and Applied Physics Program, Yokohama National University
2015	Physical Engineering Alumni Association Excellence Award Physics and Applied Physics Program, Yokohama National University
2014	Best Poster Award for Investigation Training Program Physics and Applied Physics Program, Yokohama National University

Grants

2021-present	Grant-in-Aid for JSPS Research Fellow Project: *Tests of gravity theories in strong gravity field by search for gravitational-wave polarization modes from compact binary mergers*
2018-2021	Grant-in-Aid for JSPS Research Fellow Project: *Tests of Lorentz invariance of photons using an optical ring cavity*

Teaching

2018-2019	Teaching Assistant for Laboratory Class Department of Physics, University of Tokyo
2012-2018	Cram School Teacher for Junior High School Students Musashi Seminar, Saitama, Japan

Selected memberships

2020 Student Representative, KAGRA Scientific Congress

2018-present Member, LISA Consortium

Papers

1. Hiroki Takeda, Soichiro Morisaki, and Atsushi Nishizawa, "Scalar-tensor mixed polarization search of gravitational waves", (2021). (arXiv:2105.00253)

2. Hiroki Takeda, Soichiro Morisaki, and Atsushi Nishizawa, "Pure polarization test of GW170814 and GW170817 using waveforms consistent with modified theories of gravity", Physical Review D , American Physical Society, 103, 064037 (2021). (arXiv:2010.14538)

3. Koji Nagano, Hiroki Takeda, Yuta Michimura, Takashi Uchiyama, and Masaki Ando, "Demonstration of a dual-pass differential Fabry - Perot interferometer for future interferometric space gravitational wave antennas", Classical and Quantum Gravity, IOP Publishing, 38, 085018 (2021). (arXiv:2008.12462)

4. 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, and Masahiro Kamiizumi, "Compact integrated optical sensors and electromagnetic actuators for vibration isolation systems in the gravitational-wave detector KAGRA", Review of Scientific Instruments, American Institute of Physics, 91, 115001 (2020). (arXiv:2007.09571)

5. 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, and Kentaro Somiya "Prospects for improving the sensitivity of the cryogenic gravitational wave detector KAGRA", Physical Review D , American Physical Society, 102, 022008 (2020). (arXiv:2006.08970)

6. Tomoya Kinugawa, Hiroki Takeda, and Hiroya Yamaguchi, "Probe for Type Ia supernova progenitor in decihertz gravitational wave astronomy ", (2019). (arXiv:1910.01063)

7. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, and Kazuhiro Hayama, "Prospects for gravitational-wave polarization tests from compact binary mergers with future ground-based detectors", Physical Review D , American Physical Society, 100, 042001 (2019). (arXiv:1904.09989)

8. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, and Kazuhiro Hayama, " Polarization test of gravitational waves from compact binary coalescences",Physical Review D , American Physical Society, 98, 022008 (2018). (arXiv:1806.02182)

9. Yuta Michimura, Kentaro Komori, Atsushi Nishizawa, Hiroki Takeda, Koji Nagano, Yutaro Enomoto, Kazuhiro Hayama, Kentaro Somiya, and Masaki Ando, " Particle swarm optimization of the sensitivity of cryogenic gravitational wave detector", Physical Review D , American Physical Society, 97, 122003, (2018). (arXiv: 1804.09894)

10. Kentaro Komori, Yutaro Enomoto, Hiroki Takeda, Yuta Michimura, Kentaro Somiya, Masaki Ando, and Stefan W. Ballmer, "Direct Approach for the Fluctuation -Dissipation Theorem under Non-Equilibrium Steady-State Conditions", Physical Review D , American Physical Society, 97, 102001 (2018). (arXiv: 1803.00585)

11. 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, and Hirotaka Yuzurihara, "Mirror actuation design for the interferometer control of the KAGRA gravitational wave telescope", Classical and Quantum Gravity, IOP Publishing, 34, 225001 (2017). (arXiv: 1709.02574)

Collaboration papers (LIGO-Virgo-KAGRA, KAGRA, LISA, DECIGO)

1. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (R. Abbott, ..., Hiroki Takeda, ..., et al.), "Observation of Gravitational Waves from Two Neutron Star - Black Hole Coalescences", The Astrophysical Journal Letters, IOP Publishing, 915, L5 (2021). (arXiv:2012.12926)

2. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (R. Abbott, ..., Hiroki Takeda, ..., et al.), "Upper Limits on the Isotropic Gravitational-Wave Background from Advanced LIGO's and Advanced Virgo's Third Observing Run", Physical Review D, American Physical Society, 104, 022004 (2021). (arXiv:2101.12130)

3. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (R. Abbott, ..., Hiroki Takeda, ..., et al.), "Constraints on Cosmic Strings Using Data from the Third Advanced LIGO - Virgo Observing Run", Physical Review Letters, American Physical Society, 126, 241102 (2021). (arXiv:2101.12248)

4. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (R. Abbott, ..., Hiroki Takeda, ..., et al.), "Diving below the Spin-down Limit: Constraints on Gravitational Waves from the Energetic Young Pulsar PSR J0537-6910", The Astrophysical Journal Letters, IOP Publishing, 913, L27 (2021). (arXiv:2012.12926)

5. KAGRA Collaboration (T. Akutsu, ..., Hiroki Takeda, ..., et al.), "Overview of KAGRA: Calibration, detector characterization, physical environmental monitors, and the geophysics interferometer ", Progress of Theoretical and Experimental Physics, Physical Society of Japan, ptab018 (2020). (arXiv:2009.09305)

6. KAGRA Collaboration (T. Akutsu, ..., Hiroki Takeda, ..., et al.), "Overview of KAGRA: KAGRA science", Progress of Theoretical and Experimental Physics, Physical Society of Japan, ptaa120 (2020). (arXiv:2008.02921)

7. KAGRA Collaboration (T. Akutsu, ..., Hiroki Takeda, ..., et al.), "Overview of KAGRA: Detector design and construction history ", Progress of Theoretical and Experimental Physics, Physical Society of Japan, ptaa125 (2020). (arXiv:2005.05574)

8. KAGRA Collaboration, LIGO Scientific Collaboration and Virgo Collaboration (B.P. Abbott, ..., Hiroki Takeda, ..., et al.), "Prospects for observing and localizing gravitational-wave transients with Advanced LIGO, Advanced Virgo and KAGRA", Living Reviews in Relativity, Springer International Publishing, 23, 3 (2020).

9. Kiwamu Izumi, ..., Hiroki Takeda, ..., et al., "The current status of contribution activities in Japan for LISA", Progress of Theoretical and Experimental Physics, Physical Society of Japan, ptaa124 (2020).

10. Enrico Barausse, ..., Hiroki Takeda, ..., et al., "Prospects for fundamental physics with LISA", General Relativity and Gravitation, International Society on General Relativity and Gravitation, 52, 81 (2020). (arXiv:2001.09793)

11. KAGRA Collaboration (T. Akutsu, ..., Hiroki Takeda, ..., et al.), "Application of the independent component analysis to the iKAGRA data", Progress of Theoretical and Experimental Physics, Physical Society of Japan, Volume 2020, Issue 5, 053F01 (2020). (arXiv:1908.03013)

12. KAGRA Collaboration (Tomotada Akutsu, ..., Hiroki Takeda, ..., et al.), "An arm length stabilization system for KAGRA and future gravitational-wave detectors", Classical and Quantum Gravity, IOP Publishing, 37, 035004 (2020). (arXiv:1910.00955)

13. KAGRA Collaboration (Tomotada Akutsu, ..., Hiroki Takeda, ..., et al.), "First cryogenic test operation of underground km-scale gravitational-wave observatory KAGRA", Classical and Quantum Gravity, IOP Publishing,36, 165008 (2019). (arXiv:1901.03569)

14. KAGRA Collaboration (Y. Akiyama, ..., Hiroki Takeda, ..., et al.), "Vibration isolation system with a compact damping system for power recycling mirrors of KAGRA ", Classical and Quantum Gravity, IOP Publishing, 36, 095015 (2019). (arXiv:1901.03053)

15. KAGRA Collaboration (Tomotada Akutsu, ..., Hiroki Takeda, ..., et al.), "KAGRA: 2.5 Generation Interferometric Gravitational Wave Detector ", Nature Astronomy, Nature Publishing Group, 3, 35 (2019). (arXiv:1811.08079)

16. KAGRA Collaboration (Tomotada Akutsu, ..., Hiroki Takeda, ..., et al.), "Construction of KAGRA: an Underground Gravitational Wave Observatory", Progress of Theoretical and Experimental Physics, Physical Society of Japan, Volume 2018, Issue 1 (2018). (arXiv: 1712.00148)

Talks

International only

1. Hiroki Takeda, Atsushi Nishizawa, and Soichiro Morisaki, "Polarization tests of GW170814 and GW170817 using waveforms consistent with alternative theories of gravity", 7th KAGRA International Workshop, In person for Taiwan people, in remote for others, Dec 2020.

2. Hiroki Takeda, Tomoya Kinugawa, and Hiroya Yamaguchi, "Ability of DECIGO to constrain the Type Ia supernova progenitor system", Gravitational Wave Physics and Astronomy Workshop 2019, Tokyo, Japan, Oct 2019.

3. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, and Kazuhiro Hayama, "Probing nontensorial polarization of inspiral gravitational waves with the third-generation detectors", The 28th Workshop on General Relativity and Gravitation in Japan - JGRG28, Tokyo, Japan, Nov 2018.

4. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, and Kazuhiro Hayama, "Polarization test of gravitational waves from compact binary coalescences", The 15th Marcel Grossmann Meeting, Rome, Italy, July 2018.

5. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, and Kazuhiro Hayama, "Parameter estimation with inspiral waveforms of compact binary coalescences including nontensorial gravitational waves polarizations", 19th KAGRA face-to-face meeting, Osaka, Japan, May 2018.

Posters

International only

1. Hiroki Takeda, Atsushi Nishizawa, and Soichiro Morisaki, "Search for scalar-tensor mixed polarization of gravitational waves", 14th Edoardo Amaldi Conference on Gravitational Waves, in remote style, July 2021.

2. Hiroki Takeda, Atsushi Nishizawa, Yuta Michimura, Koji Nagano, Kentaro Komori, Masaki Ando, and Kazuhiro Hayama, "Prospects for gravitational-wave polarization test from compact binary coalescences with next-generation detectors", 26th Face to Face Meeting, in remote style, Dec 2020.

3. Hiroki Takeda, Atsushi Nishizawa, and Soichiro Morisaki, "Tests of alternative theories of gravity through gravitational-wave polarization modes", 22nd International Conference on General Relativity and Gravitation, 13th Edoardo Amaldi Conference on Gravitational Waves, Valencia, Spain, July 2019.