Curriculum Vitae

Takuya Kawasaki

July 11, 2023

Address:
Institute of Innovative Research, Tokyo Institute of Technology
2-12-1 Ookayama, Megro-ku, Tokyo
152-8550, Japan

Phone: +81-3-5734-3731
Email: kawasaki@qnav.iir.titech.ac.jp
URL: https://takuya-kawasaki.github.io/
Citizenship: Japan

Education

2019–2022 **Doctor of Philosophy (Science)**
The University of Tokyo
- Thesis: *Milligram-Scale Optomechanical Systems for Macroscopic Quantum Experiments*
- Supervisor: Masaki Ando

2017–2019 **Master of Science** in Physics
The University of Tokyo
- Thesis: *Optical Levitation to Realize a Macroscopic Quantum System*
- Supervisor: Masaki Ando

2013–2017 **Bachelor of Science** in Physics
The University of Tokyo

Employment

2022–present Specially Appointed Assistant Professor
Institute of Innovative Research, Tokyo Institute of Technology

2019–2022 Research Fellowship for Young Scientists DC1
Japan Society for the Promotion of Science (JSPS)

Grants and Funding

2019–2022 Grant-in-Aid for JSPS Research Fellows, Principal Investigator.
- Project: *Optical Levitation to Realize a Macroscopic Quantum System*
- Total budget: 3,400,000 JPY

Programs

2018 Graduate Research Abroad in Science Program, adopted.
- Visit: Australian National University

Teaching

2021 Teaching assistant for *Electric Circuit* course
Department of Physics, The University of Tokyo

2020 Teaching assistant for *Electric Circuit* course
Department of Physics, The University of Tokyo

2018 Teaching assistant for *Electromagnetism III* course
Department of Physics, The University of Tokyo

Publications

Review article

1. M. Croquette, S. Deléglise, T. Kawasaki, *et. al.*
AVS Quantum Science **5**, 14403 (2023)
Recent advances toward mesoscopic quantum optomechanics

Original papers

1. Takuya Kawasaki, Kentaro Komori, Hiroki Fujimoto, Yuta Michimura, Masaki Ando
Physical Review A **106**, 013514 (2022)
Angular trapping of a linear-cavity mirror with an optical torsional spring

2. Kentaro Komori, Takuya Kawasaki, Sotatsu Otabe, Yutaro Enomoto, Yuta Michimura, Masaki Ando
Physical Review A **104**, 031501 (2021)
Improving force sensitivity by amplitude measurement of light reflected from a detuned optomechanical cavity

3. Takuya Kawasaki, Naoki Kita, Koji Nagano, Shotaro Wada, Yuya Kuwahara, Masaki Ando, Yuta Michimura
Physical Review A **102**, 053520 (2020)
Optical trapping of the transversal motion for an optically levitated mirror

Collaboration papers

1. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
Physical Review D **105**, 022002 (2022)
Search for continuous gravitational waves from 20 accreting millisecond x-ray pulsars in O3 LIGO data

2. KAGRA Collaboration (including Takuya Kawasaki):
Progress of Theoretical and Experimental Physics **2023**, 023F01 (2022)
Input optics systems of the KAGRA detector during O3GK

3. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
   Physical Review Letters **129**, 061104 (2022)
   Search for Subsolar-Mass Binaries in the First Half of Advanced LIGO's and Advanced Virgo's Third Observing Run

4. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
   The Astrophysical Journal **932**, 133 (2022)
   Narrowband Searches for Continuous and Long-duration Transient Gravitational Waves from Known Pulsars in the LIGO-Virgo Third Observing Run

5. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
   Physical Review D **105**, 122001 (2022)
   All-sky, all-frequency directional search for persistent gravitational waves from Advanced LIGO's and Advanced Virgo's first three observing runs

6. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
   Physical Review D **105**, 063030 (2022)
   Constraints on dark photon dark matter using data from LIGO's and Virgo's third observing run

7. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
   Astronomy Astrophysics **659**, A84 (2022)
   Search for intermediate-mass black hole binaries in the third observing run of Advanced LIGO and Advanced Virgo

8. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
   Physical Review D **104**, 122004 (2021)
   All-sky search for short gravitational-wave bursts in the third Advanced LIGO and Advanced Virgo run

9. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
   The Astrophysical Journal **922**, 71 (2021)
   Constraints from LIGO O3 Data on Gravitational-wave Emission Due to R-modes in the Glitching Pulsar PSR J0537-6910

10. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
    Physical Review D **104**, 102001 (2021)
    All-sky search for long-duration gravitational-wave bursts in the third Advance LIGO and Advanced Virgo run

11. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
The Astrophysical Journal **921**, 80 (2021)
Searches for Continuous Gravitational Waves from Young Supernova Remnants in the Early Third Observing Run of Advanced LIGO and Virgo

12. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
Physical Review D **104**, 082004 (2021)
All-sky search for continuous gravitational waves from isolated neutron stars in the early O3 LIGO data

13. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
Physical Review D **104**, 022004 (2021)
Upper limit on the isotropic gravitational-wave background from Advanced LIGO and Advanced Virgo's third observing run

14. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
The Astrophysical Journal Letters **915**, L5 (2021)
Observation of Gravitational Waves from Two Neutron Star-Black Hole Coalescences

15. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
Physical Review Letters **126**, 241102 (2021)
Constraints on Cosmic Strings Using Data from the Third Advanced LIGO-Virgo Observing Run

16. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
The Astrophysical Journal Letters **913**, L27 (2021)
Diving below the Spin-down Limit: Constraints on Gravitational Waves from the Energetic Young Pulsar PSR J537-6910

17. KAGRA Collaboration (including Takuya Kawasaki):
Progress of Theoretical and Experimental Physics **2021**, 05A102 (2021)
Overview of KAGRA: Calibration, detector characterization, physical environmental monitors, and the geophysics interferometer

18. KAGRA Collaboration (including Takuya Kawasaki):
Progress of Theoretical and Experimental Physics **2021**, 05A101 (2021)
Overview of KAGRA: Detector design and construction history

19. KAGRA Collaboration (including Takuya Kawasaki):
Progress of Theoretical and Experimental Physics **2021**, 05A103 (2021)
Overview of KAGRA: KAGRA science

20. KAGRA Collaboration (including Takuya Kawasaki):
    Journal of Physics: Conference Series **1857**, 012002 (2021)
    Radiative Cooling of the Thermally Isolated System in KAGRA Gravitational Wave Telescope

21. KAGRA Collaboration (including Takuya Kawasaki):
    Classical and Quantum Gravity **38**, 065011 (2021)
    Vibration isolation systems for the beam splitter and signal recycling mirrors of the KAGRA gravitational wave detector

22. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
    Physical Review D **104**, 022005 (2021)
    Search for anisotropic gravitational-wave backgrounds using data from Advanced LIGO and Advanced Virgo's first three observing runs

23. The LIGO Scientific Collaboration, the Virgo Collaboration, the KAGRA Collaboration (including Takuya Kawasaki):
    Living Review in Relativity **23**, 3 (2020)
    Prospects for observing and localizing gravitational-wave transients with Advanced LIGO, Advanced Virgo and KAGRA

24. KAGRA Collaboration (including Takuya Kawasaki):
    Progress of Theoretical and Experimental Physics **2020**, 053F01 (2020)
    Application of independent component analysis to the iKAGRA data

25. KAGRA Collaboration (including Takuya Kawasaki):
    Classical and Quantum Gravity **37**, 035004 (2020)
    An arm length stabilization system for KAGRA and future gravitational-wave detectors

26. KAGRA Collaboration (including Takuya Kawasaki):
    Classical and Quantum Gravity **36**, 165008 (2019)
    first cryogenic test of operation of underground km-scale gravitational-wave observatory KAGRA

27. KAGRA Collaboration (including Takuya Kawasaki):
    Classical and Quantum Gravity **36**, 095015 (2019)
    Vibration isolation system with a compact damping system for power recycling mirrors of KAGRA

28. KAGRA Collaboration (including Takuya Kawasaki):
    Nature Astronomy **3**, 35 (2019)
    KAGRA: 2.5 generation interferometric gravitational wave detector

Conference proceedings

1. Yuta Michimura, Yuka Oshima, Taihei Watanabe, Takuya Kawasaki, Hiroki Takeda, Masaki Ando Koji Nagano, Ippei Obata, Tomohiro Fujita:
   Journal of Physics: Conference Series **1468**, 012032 (2020)
   DANCE: Dark matter Axion search with riNg Cavity Experiment

Conferences and Workshops (Selected)

1. Contributed talk
   "Quantum radiation pressure fluctuation in a linear optical cavity"
   The 3rd International Forum on Quantum Metrology and Sensing, online, December 2020

2. Contributed talk
   "Linear cavity with a mg-scale mirror for observation of quantum radiation pressure fluctuation"
   The 2nd QFilter Workshop, Kyoto University, February 2020

3. Poster presentation
   "Optical levitation of a Mirror"
   Gravitational Wave Advanced Detector Workshop 2019, Hotel Hermitage, Isola d'Elba, Italy, May 2019.

4. Contributed talk
   "Optical Levitation to Realize a Macroscopic Quantum System"
   The 1st QFilter Workshop, Laboratoire Kasper Brossel, March 2019