

# Koki Otaki

*Curriculum Vitae (May 2025)*

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## Research History

- Apr. 2021 – **JSPS Research Fellow (DC1)**, *Japan Society for the Promotion of Science*  
Mar. 2024
- Apr. 2024 – **Project Researcher**, *Amanogawa Galaxy Astronomy Research Center, Graduate School of Science and Engineering, Kagoshima University*  
Oct. 2024
- Spt. 2024 – **Project Researcher**, *Dipartimento di Fisica, “Sapienza” Università di Roma*

## Education

- Apr. 2015 – **B. Sc.**, *College of Physics, School of Science and Engineering, University of Tsukuba*  
Mar. 2019
- Apr. 2019 – **M. Sc.**, *Master’s Program in Physics, Graduate School of Pure and Applied Sciences, University of Tsukuba*  
Mar. 2021
- Apr. 2021 – **M. Eng.**, *Degree Programs in Systems and Information Engineering, Graduate School of Science and Technology, University of Tsukuba (dual degree program)*  
Mar. 2023
- Apr. 2021 – **Ph. D.**, *Degree Programs in Pure and Applied Sciences, Graduate School of Science and Technology, University of Tsukuba*  
Mar. 2024

## Grant History

- 2021 – 2024 **Grant-in-Aid for JSPS Research Fellows**  
2.2 M Japanese Yen ( $\approx 14$  k EUR)
- 2023 **International Astronomical Union Symposium No. 377 Grant**  
237 EUR
- 2023 **The 123rd Hayakawa Satio Fund awarded by the Astronomical Society of Japan**  
256, 230 Japanese Yen ( $\approx 1.6$  k EUR)

## Refereed Papers

1. **Koki Otaki**, Masao Mori, “Frequency of the dark matter subhalo collisions and bifurcation sequence arising formation of dwarf galaxies”, *Monthly Notices of the Royal Astronomical Society*, Volume 525, Issue 2, Pages 2535-2552 (2023)
2. Yuka Kaneda, Masao Mori, **Koki Otaki**, “A universal scaling relation incorporating the cusp-to-core transition of dark matter halos”, *Publications of the Astronomical Society of Japan*, Volume 76, Issue 5, Pages 1026-1040 (2024)

3. Yudai Kazuno, Masao Mori, Yuka Kaneda, **Koki Otaki**, "*Cosmological evolution of dark matter subhaloes under tidal stripping by growing Milky Way-like galaxies*", Publications of the Astronomical Society of Japan, Volume 76, Issue 6, Pages L39-L45 (2024)

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## Refereed Proceedings

1. **Koki Otaki**, Masao Mori, "*The formation of dark-matter-deficient galaxies through galaxy collisions*", J. Phys. Conf. Ser. 2207 012049 (2022)
2. **Koki Otaki**, Masao Mori, "*Study of Galaxy Collisions and Thermodynamic Evolution of Gas Using the Exact Integration Scheme*", Lecture Notes in Computer Science, vol 13378. Springer (2022)

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## Non-Refereed Proceedings

1. **Koki Otaki**, Masao Mori, "*Collision-induced formation of dark-matter-deficient galaxies*", Proceedings of the International Astronomical Union, 17(S373), 147-150 (2023)

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## Presentations at International Conferences

- 2021 **Koki Otaki**, Masao Mori, "*The formation of dark matter deficient galaxies through galaxy collisions*", XXXII IUPAP Conference on Computational Physics
- 2021 **Koki Otaki**, Masao Mori, "*Dark matter subhalo collisions and formation of dark-matter-deficient galaxies*", KASHIWA DARK MATTER SYMPOSIUM 2021
- 2021 Yuka Kaneda, Yudai Kazuno, **Koki Otaki**, Masao Mori, "*Evolution of the sub galactic dark matter halos in the cosmological context*", KASHIWA DARK MATTER SYMPOSIUM 2021
- 2022 **Koki Otaki**, Masao Mori, "*Study of collision frequency between dark matter subhalos*", 33rd IUPAP Conference on Computational Physics
- 2022 **Koki Otaki**, Masao Mori, "*Study of galaxy collisions and thermodynamic evolution of gas using the Exact Integration scheme*", The 22nd International Conference on Computational Science and Its Applications
- 2022 **Koki Otaki**, Masao Mori, "*Collision-induced formation of dark-matter-dominated galaxies and dark-matter-deficient galaxies*", XXXIst General Assembly International Astronomical Union
- 2022 Ayami Hotta, Masao Mori, **Koki Otaki**, "*Formation of the Andromeda Giant Southern Stream and the 10 kpc ring in the Andromeda galaxy*", XXXIst General Assembly International Astronomical Union
- 2022 **Koki Otaki**, Masao Mori, "*Collision processes between dark matter subhalos and collision-induced formation of galaxies*", The 9th East Asian Numerical Astrophysics Meeting
- 2022 Masao Mori, **Koki Otaki**, "*Galaxy Collisions and Formation of Dwarf Galaxies*", KASHIWA DARK MATTER SYMPOSIUM 2022

- 2022 Yuka Kaneda, Yudai Kazuno, **Koki Otaki**, Masao Mori, "*The effect of the cusp-to-core transformation on universal scaling relations of dark matter haloes*", KASHIWA DARK MATTER SYMPOSIUM 2022
- 2023 **Koki Otaki**, Masao Mori, "*Physical conditions for collision-induced formation of galaxies*", IAU Symposium 377: Early Disk-Galaxy Formation from JWST to the Milky Way
- 2023 Yuka Kaneda, **Koki Otaki**, Masao Mori, "*The Evolution and Scaling Relations of Dark Matter Haloes*", IAU Symposium 377: Early Disk-Galaxy Formation from JWST to the Milky Way
- 2023 Yuka Kaneda, Yudai Kazuno, **Koki Otaki**, Masao Mori, "*Dynamical evolution of the sub-galactic dark matter halos and the effect of the cusp-to-core transformation*", IAU Symposium 379: Dynamical Masses of Local Group Galaxies
- 2023 **Koki Otaki**, Masao Mori, "*Study of the collision-induced formation of dwarf galaxies*", ILR kickoff meeting
- 2023 **Koki Otaki**, Masao Mori, "*Study of bifurcation in the collision-induced galaxy formation via dark matter subhalo collisions*", 34th IUPAP Conference on Computational Physics

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### Colloquium Talks (short-time visitor)

- Mar. 2023 Kagoshima University, Kagoshima, Japan
- Oct. 2023 Ludwig Maximilian University of Munich, Munich, Germany
- Oct. 2023 Sapienza University of Rome, Rome, Italy

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### Professional Societies

- 2019 – Astronomical Society of Japan
- 2023 – Association of Japanese Theoretical Astronomy and Astrophysics (RIRONKON)

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### Committee Services

- 2022 Science Organizing Committee, the 52nd Summer School of Young Japanese Astronomers