

Toshihiro Fujii

CONTACT INFORMATION	Graduate School of Science Osaka Metropolitan University 3-3-138 Sugimoto, Sumiyoshi-ku Osaka 558-8585, Japan	Phone: 06-6605-2540 (+81-6-6605-2540) Email: toshi@omu.ac.jp Citizenship: Japan
POSITION	Associate Professor, Graduate School of Science, Osaka Metropolitan University	
RESEARCH INTERESTS	Cosmic Ray Physics, Ultra-High Energy Cosmic Rays (UHECR), Fluorescence Detector, Energy Spectrum, Mass Composition, Anisotropy, Ultra-High Energy Neutrino and γ -ray.	
EDUCATION	2012 Ph.D. in Science, Osaka City University Thesis: "Measurements of the Energy Spectrum and the Mass Composition of Ultra-High Energy Cosmic Rays with Telescope Array Fluorescence Detectors in Monocular Mode" Supervisor: Prof. Shoichi Ogio 2010 M.S. in Science, Osaka City University 2008 B.S. in Science, Osaka City University	
PROFESSIONAL EXPERIENCE	2022 - present Associate Professor, Graduate School of Science, Osaka Metropolitan University 2018 - 2022 Assistant Professor, Hakubi Center for Advanced Research, Kyoto University 2016 - 2018 Japan Society for the Promotion of Science (JSPS) Postdoctoral Fellow (PD), Institute for Cosmic Ray Research, University of Tokyo 2015 - 2016 Postdoctoral Scholar, Kavli Institute for Cosmological Physics, University of Chicago 2013 - 2015 JSPS Postdoctoral Fellow for Research Abroad, Kavli Institute for Cosmological Physics, University of Chicago 2012 - 2013 JSPS Postdoctoral Fellow (PD), Institute for Cosmic Ray Research, University of Tokyo	
AWARDS	2025 President's Award of Osaka Metropolitan University 2024 The 42nd Osaka Science Prize 2024 President's Award of University Public Corporation Osaka 2024 Yoichiro Nambu Young Scientist Award in Osaka Metropolitan University 2024 Young Scientist Award (Fundamental Science) in Osaka Metropolitan University 2018 12th Young Scientist Award of the Physical Society of Japan (JPS) 2018 Cosmic Ray Physics Award of Cosmic ray Researchers Congress (CRC) 2017 The Physics World Top 10 Breakthrough 2017 (IOP Publishing) "Observation of a large-scale anisotropy in the arrival directions of cosmic rays above 8×10^{18} eV"	
RESEARCH GRANTS AND FELLOWSHIPS	2025 - present JSPS Grant-in-Aid for Scientific Research (A) Principal Investigator, Title: "Cross calibration of ultra-high-energy cosmic ray observatories using new air-fluorescence telescope", Osaka Metropolitan University, 35,400,000 JPY 2025 - present JSPS Mobility Plus Projects with F.R.S.-FNRS Principal Investigator, Title: "Developments of two-layers water-Cherenkov detector for Probing Extreme PeVatron Sources", Osaka Metropolitan University, 5,000,000 JPY	

2021 - 2025	JSPS Grant-in-Aid for Scientific Research (A), 21H04470 Principal Investigator, Title: "Pioneering ultrahigh-energy cosmic ray astronomy using new air-fluorescence telescope array", Osaka Metropolitan University, 34,710,000 JPY
2021 - 2024	JSPS Mobility Plus Projects with Czech Academy of Sciences Principal Investigator, Title: "Upgrade of new cosmic-ray fluorescence telescope to accommodate in the remote field", Kyoto University, 4,600,000 JPY
2020 - 2025	JSPS Grant-in-Aid for Transformative Research Areas (A) Transformative Research Areas, Section (II), Co-investigator (PI: Kohta Murase), Title: "Multimessenger Study of Heavy Dark Matter", Kyoto University, 55,380,000 JPY
2019 - 2024	JSPS Grant-in-Aid for Scientific Research, Fund for the Promotion of Joint International Research (Fostering Joint International Research (B)) Co-Investigator (PI: Takashi Sako), Title: "Search for Ultra-High Energy Cosmic Ray origin using the extended Telescope Array experiment", University of Tokyo, 18,330,000 JPY
2019 - 2024	JSPS Grant-in-Aid for Scientific Research, Fund for the Promotion of Joint International Research (Fostering Joint International Research (A)) Principal Investigator, Title: "An energy calibration of ultrahigh-energy cosmic ray observatories using new air-fluorescence telescopes" Kyoto University, 7,020,000 JPY
2018 - 2021	JSPS Grant-in-Aid for Scientific Research (B), 18H01225, Principal Investigator, Title: "A Systematic Uncertainty Study on Ultra-High Energy Cosmic Rays with New Fluorescence Detector", University of Tokyo, 17,160,000 JPY
2016 - 2018	JSPS Grant-in-Aid for JSPS Research Fellow, 16J04564, Principal Investigator, Title: "Observation of Ultra-High Energy Cosmic Rays and Measurement of Their Mass Composition with New Fluorescence Detector", University of Tokyo, 4,420,000 JPY
2016 - 2018	JSPS Research Fellowship for Young Scientists (PD), H28-4564 University of Tokyo, 13,032,000 JPY
2015 - 2017	JSPS Grant-in-Aid for Young Scientist (A), 15H05443, Principal Investigator, Title: "Establishment of New Technique to Observe Ultra-High Energy Cosmic Rays with New Fluorescence Detector", University of Tokyo, 23,140,000 JPY
2013 - 2015	JSPS Postdoctoral Fellowship for Research Abroad, H25-339, University of Chicago, 10,512,000 JPY
2011 - 2013	JSPS Grant-in-Aid for JSPS Fellows, 11J02728, Principal Investigator, Title: "Energy Spectrum of Ultra-High Energy Cosmic Rays Measured by the Telescope Array Fluorescence Detector", Osaka City University → University of Tokyo, 1,300,000 JPY
2011 - 2013	JSPS Research Fellowship for Young Scientists (DC2→PD), H23-2728 Osaka City University → University of Tokyo, 5,772,000 JPY

SELECTED
PUBLICATION

1. “An extremely energetic cosmic ray observed by a surface detector array”, R.U. Abbasi, T. Fujii (10/85, Corresponding author) et al., *Science* 382, 903-907 (2023)
2. “Observing cosmic-ray extensive air showers with a silicon imaging detector”, S. Kawanomoto, T. Fujii (4/10, Corresponding author) et al., *Scientific Reports* 13, 16091 (2023)
3. “Effects of the Galactic Magnetic Field on the UHECR Correlation Studies with Starburst Galaxies”, R. Higuchi, T. Fujii (3/5) et al., *Astrophysical Journal* 949, 107 (2023)
4. “Revisiting ultrahigh-energy constraints on decaying superheavy dark matter”, S. Das, K. Murase and T. Fujii (3/3), *Physical Review D* 107, 103013 (2023)
5. “Search for Large-scale Anisotropy on Arrival Directions of Ultra-high-energy Cosmic Rays Observed with the Telescope Array Experiment”, R.U. Abbasi, T. Fujii (15/143, Corresponding author) et al., *Astrophysical Journal Letters* 898, L28 (2020)
6. “The First Full-Scale Prototypes of the Fluorescence detector Array of Single-pixel Telescopes” M. Malacari, T. Fujii (3/19) et al., *Astroparticle Physics* 119 (2020) 102430
7. “Testing a Reported Correlation between Arrival Directions of Ultra-high-energy Cosmic Rays and a Flux Pattern from nearby Starburst Galaxies using Telescope Array Data”, R.U. Abbasi, T. Fujii (15/141, Corresponding author) et al., *Astrophysical Journal Letter* 867, L27 (2018)
8. “The prototype opto-mechanical system for the Fluorescence detector Array of Single-pixel Telescopes”, D. Mandat, T. Fujii (9/19) et al., *Journal of Instrumentation* 12, T07001 (2017)
9. “Search for ultrarelativistic magnetic monopoles with the Pierre Auger observatory”, A. Aab, T. Fujii (117/413, Corresponding Author in the collaboration) et al., *Physics Review D* 94, 082002 (2016), nominated as Editors’ Suggestion
10. “The energy spectrum of cosmic rays above $10^{17.2}$ eV measured by the fluorescence detectors of the Telescope Array experiment in seven years”, T. Fujii (15/123, Corresponding Author) et al., *Astroparticle Physics* 80 pp131-140 (2016)
11. “Detection of Ultra-High Energy Cosmic Ray Showers with a Single-pixel Fluorescence Telescope”, T. Fujii (1/20, Corresponding Author) et al., *Astroparticle Physics*, 74, pp64-72 (2016)
12. “Is the ultra-high energy cosmic-ray excess observed by the Telescope Array correlated with IceCube neutrinos?”, K. Fang, T. Fujii (2/4), T. Linden and A. V. Olinto, *The Astrophysical Journal* 794, pp126-132 (2014)
13. “Indications of intermediate-scale anisotropy of cosmic rays with energy greater than 57 EeV in the northern sky measured with the surface detector of the Telescope Array Experiment”, R. U. Abbasi, T. Fujii (17/125) et al., *The Astrophysics Journal Letters* 790, L21, (2014)
14. “The Energy Spectrum of Ultra-High Energy Cosmic Rays Measured by the Telescope Array FADC Fluorescence Detectors in Monocular Mode”, T. Abu-Zayyad, T. Fujii (17/139, Corresponding Author) et al., *Astroparticle Physics*, 48, pp16-24 (2013)
15. “New air fluorescence detectors employed in Telescope Array Experiment”, H. Tokuno, T. Fujii (7/139) et al., *Nuclear Instruments and Method in Physics Research Section A*, 676, pp54-65 (2012)