Kohki Uno

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Academic Interests

Weird Transients, Supernovae, Tidal Disruption Events, Radiation Hydrodynamics, Massive Data Analysis

Research Positions

Postdoctoral Researcher

Kyoto University, Kyoto, Japan — Apr. 2025 - present

[Previous Positions]

JSPS Research Fellow (DC1)

Kyoto University, Kyoto, Japan — Apr. 2022 - Mar. 2025
(JSPS = Japan Society for the Promotion of Science)

Visiting Scholar

Columbia University, NY, USA — Mar. 2024 - Jun. 2024

Education

Ph. D. in Astronomy

Kyoto University, Kyoto, Japan — Apr. 2022 - Awarded Mar. 2025

- Advisor: Prof. Keiichi Maeda
- PhD Thesis: Diversity of Explosive Transients: Classical Supernovae to New Populations

M. Sc. in Astronomy

Kyoto University, Kyoto, Japan — Apr. 2020 - Awarded Mar. 2022

- Advisor: Prof. Keiichi Maeda
- Master Thesis: Light-Curve Modeling for Rapidly-Evolving Transients

B. Sc. in Astronomy

Kyoto University, Kyoto, Japan — Apr. 2016 - Awarded Mar. 2020

Fellowships, Grants, & Funding

- JSPS Overseas Research Fellowship (JPY ~15,000,000) 2025
- JSPS Overseas Challenge Program for Young Researchers (JPY 1,400,000) 2023
- Hayakawa Satio Fund awarded by the Astronomical Society of Japan (JPY 216,200) 2023
- DoGS Overseas Travel Support Program awarded by Kyoto University (JPY 400,000) 2022
- JSPS Research Fellowship for Young Scientist - DC1 (JPY 3,400,000) 2022

List of Publications [ADS]

[Preprint – Under Review]

1. **Kohki Uno**, Keiichi Maeda, Takashi Nagao et al., arXiv:2503.19024
   Spectropolarimetry of A Nuclear Transient AT2023clx: Revealing The Geometrical Alignment between The Transient Outflow and The Nuclear Dusty Region

[Refereed Lead-Author Papers]

5. **Kohki Uno** & Keiichi Maeda 2023, MNRAS, 521, 4598-4604
   Light-curve Modelling for The Initial Rising Phase of Rapidly-evolving Transients Powered by Continuous Outflow
4. **Kohki Uno**, Takashi Nagao, Keiichi Maeda et al. 2023, ApJ, 944, 204 (13pp)
   SN2020uem: A Possible Thermonuclear Explosion within A Dense Circumstellar Medium (II). The Properties of the CSM from Polarimetry and Light Curve Modeling
3. **Kohki Uno**, Keiichi Maeda, Takashi Nagao et al. 2023, ApJ, 944, 203 (17pp)
   SN2020uem: A Possible Thermonuclear Explosion within A Dense Circumstellar Medium. I. The Nature of Type IIn/Ia-CSM SNe from Photometry and Spectroscopy
2. **Kohki Uno** & Keiichi Maeda 2020, ApJL, 905, L8 (8pp)
   Application of The Wind-Driven Model to A Sample of Tidal Disruption Events
1. **Kohki Uno** & Keiichi Maeda 2020, ApJ, 897, 156 (13pp)
   A Wind-Driven Model: Application to Peculiar Transients AT2018cow and iPTF14hls

[Refereed Co-Author Papers]

6. Takashi Nagao, Keiichi Maeda, …, **Kohki Uno** et al. 2024, A&A, 687, L17 (15pp)
   Evidence for bipolar explosions in Type IIP supernovae
   Contribution: Observed the transient; SN2021yja, using the Seimei telescope
5. Yuta Murai, Masaomi Tanaka, …, **Kohki Uno** et al. 2024, MNRAS, 528, 4209-4227
   Intermediate-luminosity Type IIP SN 2021gmj: A low-energy explosion with signatures of circumstellar material
   Contribution: Observed the transient; SN2021gmj, using the Seimei telescope
4. Anjasha Gangopadhyay, Keiichi Maeda, …, **Kohki Uno** et al. 2023, ApJ, 957, 100 (21pp)
   Bridging between Type IIb and Ib Supernovae: SN IIb 2022crv with a Very Thin Hydrogen Envelope
   Contribution: Observed the transient; SN2022crv, using the Seimei telescope
3. Takashi Nagao, Hanindyo Kuncarayakti, …, **Kohki Uno** et al. 2023, A&A, 673, A27 (12pp)
   Photometry and spectroscopy of the Type Icn supernova 2021ckj: The diverse properties of the ejecta and circumstellar matter of Type Icn SNe
   Contribution: Helped with the interpretation and discussion of the light curve properties of SN2021ckj based on my light curve model proposed by KU&Maeda (2020a/b, 2023)
2. Ji-an Jiang, Naoki Yasuda, …, **Kohki Uno** et al. 2022, ApJL, 933, L36 (9pp)
   MUSSES2020J: The Earliest Discovery of a Fast Blue Ultraluminous Transient at Redshift 1.063
   Contribution: Helped with the interpretation and discussion of the light curve properties of MUSSES2020J based on my light curve model proposed by KU&Maeda (2020a/b, 2023)
1. Ji-an Jiang, Keiichi Maeda, …, **Kohki Uno** et al. 2021, ApJL, 923, L8 (14pp)
   Discovery of the Fastest Early Optical Emission from Overluminous SN Ia 2020hvf: A Thermonuclear Explosion within a Dense Circumstellar Environment
   Contribution: Observed the transient; SN2020hvf, using the Seimei telescope

List of Presentations

[Invited Talks]

1. 2nd Finland-Japan Bilateral Meeting on Extragalactic Transient (Nov. 2023, University of Turku / Finland)

[Contributed Talks]

7. Tidal Disruption Events and Nuclear Transients: Entering the Data-Rich Era (Sep. 2024, Heraklion / Greece)
6. XXXII IAU General Assembly - Focus Meeting #4 (Aug. 2024, Cape Town / South Africa)
5. Transients Down Under (Feb. 2024, Swinburne University of Technology /Australia)
4. Japanese-South American Supernovae (J-SAS) one-day workshop (Jan. 2024, ESO Chile / Chile)

3. Exploring The Transient Universe (Dec. 2022, University of Tokyo / Japan)
2. Super Virtual 2022 - From Common To Exotic Transients - (Nov. 2022, online)
1. 1st Finland-Japan Bilateral Meeting on Extragalactic Transient (Sep. 2022, University of Turku / Finland)

[Seminars & Colloquia]

3. Flatiron Institute (Jun. 2024, USA)
2. University of Turku (Nov. 2023, Finland)
1. Columbia University (Sep. 2022, USA)

Allocated Telescope Time (P.I.)

- Subaru/FOCAS, S25A-068, 2 nights
- Subaru/FOCAS, S24A-062, 2 nights
- Subaru/FOCAS, S23B-025, 1 night (postponed to S24B due to telescope troubles)
- Subaru/FOCAS, S23A-052, 2 nights

Teaching Experiences

Teaching Assistant at the course of Theoretical Astronomical Seminar (2020, 2021) and Electromagnetics (Fall 2023) in Kyoto University.

Outreach Experiences

- Visiting Lecture at Salesian International School Setagaya, Tokyo, Japan 2024
- Lecture for high-school students at Kyoto University (ELCAS) 2024
- Visiting Lecture at Akashi High School, Hyogo, Japan 2023
- Visiting Lecture at Tomioka-nishi High School, Tokushima, Japan 2023
- Visiting Lecture at Kawase High & Junior-high School, Shiga, Japan 2022
- Lecture for high-school students at Kyoto University 2022

Memberships

- The Astronomical Society of Japan
- Group of Theoretical Astronomers and Astrophysics in Japan
- Group of Optical and Infrared Astronomers in Japan

Skills & Miscellaneous

- Programming Languages - Fortran / Python / C / IRAF&PyRAF
- Languages - Japanese (Native Language) / English (Intermediate)
- Japanese high school teaching license (subject: Science)