

ELENI KOUTSIONA

[in](#) Eleni Koutsiona | [elenikt.github.io](#)

EDUCATION

- **Heidelberg University**, Master of Science in Physics (Astrophysics) expected 2026
- **University of Crete**, Bachelor of Science in Physics June 2024
- **Aarhus University**, Erasmus Exchange - Studies Feb - June 2021
Enrolled in advanced elective courses: Advanced Cosmology (Graduate Level), Lasers & Optics Laboratory

INTERNSHIPS

- **European Space Agency** accepted, starting Sep 2026
Reverberation Mapping Simulations of AGN
Supervisor: Dr. Bert Vander Meulen
- **Max Planck Institute for Astronomy** July - Aug 2024
Analysis of optical spectra of distant star-forming dusty galaxies to determine spectroscopic redshifts, metallicities, and kinematics
Supervisor: Dr. Ugne Dudzeviciute
- **Kyoto University, Okayama Observatory** Oct 2023 - March 2024
Spectroscopic and photometric observations using 3.8m Seimei telescope, data reduction and analysis for transients, with a focus on supernovae. Classification of [SN2023uta](#), [SN2023ucy](#), and [SN2024dop](#). Spectral characterisation and estimate of basic properties of Type II supernova 2023rky
KyotoNova group, Supervisor: Prof. Keiichi Maeda
- **Skinakas Observatory, Institute of Astrophysics, FORTH** May - Oct 2023
Polarimetric, spectroscopic, photometric observations using 1.3m telescope. Funded by the [NSRF](#)

PUBLICATIONS

- Kangas, T., et al., The enigmatic two-peaked stripped-envelope SN 2023aew. [A&A](#) Sept 2024
- Mandarakas, N., et al., Zero-polarization candidate regions for calibration of wide-field optical polarimeters. [A&A](#) April 2024

AWARDED OBSERVING TIME

- **NOEMA (S25BV; 39hr)**: The ISM conditions in the dominant star-forming population at z 1-2 May 2025
PI: Dr. Ugne Dudzeviciute
Follow-up observations to obtain CO emission in dusty star-forming galaxies I analyzed during my summer internship. I helped select the target sample, provided spectroscopic redshifts and metallicities, as well as made a science figure for the proposal.

PROJECTS

- **MSc Thesis**: Probing Dust, Gas, and Feedback in $z \sim 3$ Radio Galaxies through Nov 2025 - present
 $\text{Ly}\alpha/\text{H}\alpha$ Mapping
Measuring the $\text{Ly}\alpha/\text{H}\alpha$ flux ratio to provide constraints on the escape of resonant photons, dust geometry, and the multiphase gas distribution in high-z galaxies
Galaxy Evolution & AGN Group - [ARI](#), Supervisor: Prof. Dr. Dominika Wylezalek
- **BSc Thesis**: Spatially resolved dust attenuation in Luminous Infrared Galaxies Feb 2023 - June 2024
Using JWST observations to study the emission of H-recombination lines and obtain spatially resolved maps of the dust attenuation towards star-forming regions in nearby luminous infrared galaxies
[IA - FORTH](#), Supervisor: Dr. T. Diaz-Santos
- **Seminar**: Radiative Transfer June - Sept 2023
Organised and instructed an online, biweekly seminar on radiative transfer targeted towards graduate students, under the supervision of Prof. Keiichi Maeda
- **Research Project**: Enhanced Urban Area Mapping Across Pan-European Landscapes using Sentinel-2 Imagery. 2021 - 2024
Cloud masking, creation of spectral library to train an X-SVM algorithm
[RSLab - FORTH](#), Supervisors: Dr. N. Chrysoulakis, I. Lantzanakis
- **Citizen Science Project**: Supernova Hunters Oct 2022
Contributed to discovery of PSN transients [2022ynb](#) and [2022xwl](#)
- **Experimental Design Project**: Experimental setup for high-accuracy measurement of the width and distance between interference fringes Sept 2021 - Feb 2022
Designed setup has since been implemented in the Undergraduate Optics Lab, University of Crete
Supervisor: Prof. P. Rakitzis

CONFERENCES & TALKS

• Summer Schools:

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| – WE-Heraeus and NARIT Cosmology School 2025 – Galaxies and Beyond
Presentation Title: 'Dust Attenuation and Properties of Luminous Infrared Galaxies' | Oct 2025 |
| – High Redshift Transients with JWST - STScI
Received ESA scholarship to support participation | Aug 2025 |
| – EXCOSM Summer School, University of Tartu | July 2025 |
| – Astrostatistics in Crete, University of Crete | June 2025 |
| – Junge Astronomische Gesellschaft Meeting 2025, AIP | June 2025 |

• Conferences:

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| – Transient and Supernova WS 2023
Presentation Title: 'Support Vector Machines: From Remote Sensing to Supernovae Classification' | Dec 2023 |
| – Theoretical Astronomy 2023, Kyoto University
Presentation Title: 'Near and mid-infrared line emission analysis of starburst galaxy NGC7469' | Dec 2023 |

• Workshops:

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| – Julia in Research on Universe and Matter | Feb 2026 |
| – GitHub and Advanced Python for Science - Max Planck Institute for Astronomy | July 2024 |
| – Machine Learning, University of Crete | July - Aug 2023 |
| – Introduction to Data Analysis with Python, University of Crete | Oct 2022 |

• Talks:

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| – 'Spectroscopic Redshifts, Properties, and Kinematics of Dusty Galaxies'
MPIA Summer Student Seminar at Galaxies & Cosmology Department | Aug 2024 |
| – 'Machine Learning Approaches for Supernova Classification'
Invited Talk to Supernova Group, Kyoto University. Invited by Prof. Keiichi Maeda | Jan 2024 |

TOOLS, SKILLS & SOFTWARE

- Programming Languages: Python (advanced user), C (beginner user), CUDA (beginner user)
- Scientific Programming Tools: IRAF/PyRAF, DS9, Bash, Anaconda, PyTorch, TensorFlow, JupyterLab, Matlab, Origin, Lammps, OVITO, QGIS, L^AT_EX
- Amateur Telescope Operation: 8 inches diameter Dobsonian Telescope, 9.8 inches Schmidt – Cassegrain Telescope, 12 inches Meade LX200 Telescope
- Lasers and Optics Laboratory: Continuous-wave (CW), Q-switched (nanosecond), and mode-locked (femtosecond) lasers, non-linear optical methods, UV-Vis spectroscopy
- Languages: Greek (native), English (fluent), German (intermediate), Spanish (beginner), Italian (beginner)

VOLUNTEERING & OUTREACH

- Content writer for **Uni-mag** **May 2023 - present**
Wrote and published two articles of scientific content for astronomy themed online magazine Uni-mag
- FIRST LEGO League, Robotics Competition **Feb 2023**
Participated as a referee
- IAU NameExoworlds **Dec 2022**
Assembled and led participating group, organised outreach event
- Student Astronomy Club, University of Crete **Sep 2018 - 2024**
Responsible for group logistics, organising and participating in weekly meetings, presentations, public observations, lectures, and various events including European Researchers' Night and World Space Week
- Tutoring **2019 - 2024**
Tutoring peers in physics and programming related courses, including Physics 101, Computational Physics, Ordinary Differential Equations