

Dr. Julien Anton Wolf

Postdoctoral Researcher

Astrophysicist specializing in the discovery and characterization of the earliest quasars and the formation of the first supermassive black holes. My work recently culminated in the discovery of the most distant known quasar at $z = 8.13$. I lead JWST/NIRSpec IFU studies, develop machine-learning discovery pipelines for Euclid quasar searches, and have secured major PI-led observing programmes with JWST, HST, and VLT. Combining state-of-the-art observations with novel data-driven methods, I aim to push the observational frontier of the early Universe.

French & German | julien.wolf@eso.org | [Research website](#)

European Southern Observatory · Karl-Schwarzschild-Str. 2, 85748 Garching bei München

WORK EXPERIENCE



Postdoctoral Researcher

European Southern Observatory, Garching
Quasar feedback with integral field spectroscopy.
Group leader: Dr. Vincenzo Mainieri.

Since Jul 2026



Postdoctoral Researcher

Max-Planck-Institute for Astronomy, Heidelberg
Characterisation of distant quasars with JWST and $z > 7$ quasar searches with Euclid.
Group leader: Dr. Eduardo Bañados.

Jul 2023 – Jun 2026

EDUCATION



PhD in Astrophysics

Max-Planck-Institute for Extraterrestrial Physics & ORIGINS Excellence Cluster, Garching
Thesis: “Tracing the Evolution of Super-Massive Black Holes through Cosmic Time with Luminous Active Galactic Nuclei.” Final grade: 0.88 (*magna cum laude*).
Supervisors: Prof. Dr. Kirpal Nandra and Dr. Mara Salvato.
High- z quasar searches with eROSITA; multiwavelength counterpart identification.

Apr 2019 – Feb 2023



MSc in Astrophysics

Ludwig-Maximilians-Universität, University Observatory (USM), Munich
Thesis: “Generating Volumetric Representations of the Dark Matter Halo Distribution Using Deep Machine Learning.” graded 1.0, overall 1.31.
Supervisors: Prof. Dr. Jochen Weller and Dr. Ben Hoyle.

Sep 2016 – Mar 2018



BSc in Physics Plus Astronomy

Ludwig-Maximilians-Universität, Munich
Thesis: “Constraining Extra-Dimensions Using Supernovae Data.” graded 1.0, overall 2.32.
Supervisor: Prof. Dr. Jochen Weller.

Sep 2011 – May 2016



Abitur & Baccalauréat (OIB)

Lycée International, Saint-Germain-en-Laye
French and German double curriculum, with a focus on science.

Jul 2009

PUBLICATIONS

 **ORCID** 0000-0003-0643-7935

FULL PUBLICATION LIST NASA ADS public library

First- and second-author publications (including submitted work)

Euclid: Discovery of a quasar at $z = 8.13$ hosting a 360-million-solar-mass black hole

Wolf, Belladitta, Yang et al. *A&A*, accepted 8 October 2026.

Quasar jet feedback at $z \sim 6$: JWST/NIRSpec reveals a 17 kpc outflow and jet-induced star formation

Wolf, Bañados, Arrigoni Battaia et al. Submitted to *A&A*.

Shedding the envelope: JWST reveals a kiloparsec-scale [O III]-weak Balmer shell around a $z = 7.64$ quasar

Wolf, Bañados, Fan et al. *A&A*, 707, A299 (2026).

16 new quasars at the end of the reionization unveiled by self-supervised learning

Martínez-Ramírez, **Wolf**, Belladitta et al. *A&A*, 708, A117 (2026).

Counterpart identification and classification for eRASS1 and characterisation of the active galactic nuclei content

Salvato, **Wolf**, Dwelly et al. *A&A*, 704, A344 (2025).

The SRG/eROSITA All-Sky Survey: X-ray beacons at late cosmic dawn

Wolf, Salvato, Belladitta et al. *A&A*, 691, A30 (2024).

X-ray emission from a rapidly accreting narrow-line Seyfert 1 galaxy at $z = 6.56$

Wolf, Nandra, Salvato et al. *A&A*, 669, A127 (2023).

The eROSITA Final Equatorial-Depth Survey (eFEDS). Identification and characterization of the counterparts to point-like sources

Salvato, **Wolf**, Dwelly et al. *A&A*, 661, A3 (2022).

First constraints on the AGN X-ray luminosity function at $z \sim 6$ from an eROSITA-detected quasar

Wolf, Nandra, Salvato et al. *A&A*, 647, A5 (2021).

Exploring the diversity of Type 1 active galactic nuclei identified in SDSS-IV/SPIDERS

Wolf, Salvato, Coffey et al. *MNRAS*, 492, 3580 (2020).

Selected press coverage

- “Serendipitous detection of a rapidly accreting black hole in the early Universe” — MPE press release.

OBSERVING PROGRAMMES

- **JWST/NIRSpec IFU — co-PI**. PRISM-DAWN: Unveiling the Diversity of Cosmic Dawn Through a NIRSpec IFU Prism Survey of All Known $z > 7$ Quasars (Cycle 5; GO 10406; 100.3 h).
- **JWST/NIRSpec + NIRCам — PI**. Unlocking the Quasar Redshift Frontier: A JWST Benchmark for Early SMBH Growth and Reionization at $z > 8$ (Cycle 5 DDT; GO 12761; 8.1 h).
- **JWST/NIRSpec — co-PI**. Pushing the Edge: A JWST Survey to Discover the Faintest Euclid QSOs at Cosmic Dawn (Cycle 5; GO 11173).
- **HST/WFC3 — PI**. Beyond the Quasar Redshift Frontier: Uncovering Rapidly Accreting Supermassive Black Holes at $z > 8$ with HST/WFC3 and Euclid (Cycle 33; GO 18112; 125 SNAP orbits approved).
- **VLT/FORS2 — PI**. A new population of X-ray beacons at cosmic dawn with VLT/FORS2 (114.27Q4; 68 ks approved).
- **Chandra/ACIS-S**. Programmes 22700698, 23700663 and 24700537; 133 ks approved.
- **Magellan/FIRE 6.5m**. Two nights approved.
- **eROSITA**. Project on the search for high- z quasars in the eROSITA All-Sky Survey.

OBSERVING EXPERIENCE



LBT observing runs

Tucson & Mt. Graham, Arizona, USA

8 nights

On-site observations (April 2024) and remote observing (September 2025); optical and near-infrared spectroscopy of high- z quasars and LBT service observations.



MPG/ESO 2.2m observing run

La Silla, Chile

7 nights

On-site observing (February 2020); optical and near-infrared imaging of high- z quasar candidates with GROND, plus GROND and WFI service observations.

STUDENT SUPERVISION

- **Laura Martínez-Ramírez — PhD (co-supervision).** Successfully defended 12 December 2025. Deep-learning quasar discovery project (Martínez-Ramírez, Wolf et al., 2026).
- **Sebastian Splitthoff — completed Master's thesis (main supervision); now a PhD researcher at MPE.** Cosmic-noon quasar discovery using Gaia spectroscopy and SPHEREx.

TALKS AND SEMINARS

Invited and solicited talks

- *Euclid SWG-PU meeting*, Ringberg. “Unlocking the quasar redshift frontier from space.” Jul 2026
- *First Results from the SRG/eROSITA All-Sky Survey*, Garching. “X-ray beacons at late cosmic dawn.” Sep 2024
- *COSPAR 2022*, Athens (invited). “Finding high-redshift quasars with eROSITA.” Jul 2022
- *Quasars Through Cosmic Times*, online. “The hunt for X-ray luminous quasars at $z > 5.5$.” Jan 2022

Selected contributed talks

- *Highly Accreting SMBHs Across Cosmic Time*, Santiago. “Tales of two quasars.” Dec 2025
- *MBHs Across Cosmic Time*, Cambridge. “Reionization-era quasar jet with JWST/NIRSpec IFU.” Sep 2025
- *EAS 2025*, Cork. “Reionization-era quasar jet with JWST/NIRSpec IFU.” Jun 2025
- *Quo Vadis Galaxy Evolution?*, Heidelberg. “Jet driving a 20 kpc [O III] outflow at $z \sim 6$.” Jun 2025
- *Probing the Genesis of SMBHs*, Tokyo. “Kinematics in the $z = 7.6$ quasar with NIRSpec IFU.” Nov 2024
- *Origin & Evolution of SMBHs*, Sexten. “Kinematics of the most distant quasar with NIRSpec IFU.” Jul 2024

TRAINING



IMPRS Summer School 2023: Unraveling Galaxy Evolution with JWST

Interdisciplinary Center for Scientific Computing, Heidelberg
School on JWST data analysis.

Sep 2023



Carl-Zeiss-Stiftung School 2023

Interdisciplinary Center for Scientific Computing, Heidelberg
Training in modern deep-learning methods.

Aug 2023



International Max Planck Research School on Astrophysics

Ludwig-Maximilians-Universität, Munich
Advanced lectures in astrophysics and cosmology.

Apr 2019 – Mar 2023



AHEAD X-ray and Multiwavelength School

Max-Planck-Institute for Extraterrestrial Physics, Garching
Training in tools for astronomical surveys.

Nov 2018

ACTIVE COLLABORATIONS

- **Euclid Consortium:** Primeval Universe Science Working Group; core member of the $z > 7$ quasar discovery team.
- **EREBUS:** International JWST quasar community.
- **AETHER Survey:** JWST/NIRSpec IFU quasar survey (GO 5645; PI: E. Farina).
- **Additional collaborations:** eROSITA (external collaborator), New Athena, SDSS-V.

FURTHER RESEARCH EXPERIENCE



Summer intern
Max-Planck-Institute for Extraterrestrial Physics
Statistical analysis of the optical and X-ray properties of X-ray selected AGN.

Jul – Aug 2018

SOFTWARE AND PROGRAMMING

Code repository github.com/jwolf-dinh

Extensive experience with machine- and deep-learning methods and large multiwavelength surveys, including eROSITA X-ray counterpart identification (Salvato, Wolf et al. 2022), Bayesian cross-matching (NWAY), and *Euclid* high- z quasar discovery with catalogue-based and CNN image-classification methods.

- Languages**

Python (fluent), ADQL/SQL, HTML, C++, FORTRAN, IDL.
- Spectroscopy**

PyteIt, pyqsofit, q3dfit; custom emission-line and continuum fitting; PSF subtraction.
- Simulations**

Cloudy / pyCloudy, MAPPINGS, 3MDB shock grids.
- X-ray analysis**

eSASS, CIAO, BXA, (py)XSPEC, SHERPA.

SCIENTIFIC COMMUNITY WORK

- Main initiator and organizer of the Heidelberg AGN Meeting series.
- Journal referee for *MNRAS* since 2022 and *ApJS* since 2025.
- Organized the MPIA Galaxies & Cosmology department retreat (2025).
- Local organizing committee, 10th IMPRS Student Symposium.
- MPE outreach: public presentations and institute tours.
- Contributor to the *Athena Science Nugget* outreach series.

LANGUAGES

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French Native
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German Native
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English Fluent
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Spanish Beginner
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Japanese Beginner