

Geneva Observatory
Chemin Pegasi 51
1260 Versoix, Switzerland
Email: romain.meyer@unige.ch
<https://rameyer.github.io/>
ORCID ID: 0000-0001-5492-4522

Dr. Romain A. Meyer

RESEARCH INTERESTS

Using a wide range of observational probes and facilities from the optical and infrared to the millimeter domain, I aim to characterise the properties of galaxies in the first billion years of the Universe, their role in cosmic hydrogen reionisation, and their co-evolution with their central supermassive black holes.

Keywords: Cosmic Reionisation, First Galaxies & Quasars, Multi-wavelength

EMPLOYMENT

Maître-Assistant (Research & Teaching Fellow) Geneva Observatory, Switzerland

Multi-Wavelength Perspectives of the First Galaxies

Member of the group of Prof. Pascal Oesch

April 2023 - Present

Postdoctoral Researcher

Max Planck Institute for Astronomy, Germany

Galaxies and Quasars in the First Billion Years

Member of the group of Dr. Fabian Walter

October 2020 - March 2023

EDUCATION

PhD in Astrophysics

University College London, United Kingdom

Thesis: The Role of Galaxies and Quasars in Reionising the High Redshift Intergalactic Medium

Supervisor: Prof. Richard S. Ellis

September 2017 - August 2020

Msc in Physics

Ecole Polytechnique Fédérale de Lausanne, Switzerland

Thesis: PSF Interpolation via Artificial Neural Networks

Supervisors: Prof. Frédéric Courbin, Dr. Thibault Kuntzer

2015-2017

Bsc in Physics

Ecole Polytechnique Fédérale de Lausanne, Switzerland

Erasmus year at Imperial College, London

Thesis: Cross-calibration of the Herschel SPIRE instruments

Supervisor: Prof. Dave Clements, Dr. Rosalind Hopwood

2012-2015

PUBLICATIONS

39 (9 first-author) refereed papers published in major astronomical journals (A&A, MNRAS, ApJ, Nature) since 2018 (2019), totalling 1254 (225) citations for an h-index of 21 (7). A full list of my publications can be found on [NASA ADS](#) or on my [ORCID](#) profile.

GRANTS AND THIRD-PARTY FUNDING

MERAC funding and travel award (2400 CHF)

May 2024

Funding for collaboration visits to support research projects on $z > 6$ quasar host galaxies

AWARDED TELESCOPE TIME

As PI:

- “Characterising a $z \sim 6$ gravitationally-lensed BAL quasar candidate”
2.9h XShooter/VLT spectroscopy constraining the BH mass and BAL properties (113.26CY)
- “Characterizing the Source of Ionising Photons in the Epoch of Reionization”
10.53h JWST NIRSpec IFU observations of four $z > 5.8$ galaxies (GO2 3767)
- “Measuring the mass of the SMBHs powering two lensed $z \sim 6$ quasars”
4.23h Gemini (DDT) Flamings-2 long-slit spectroscopy (DT-2022B-029)
- “Disentangling the nature of JWST ultra-high-redshift candidates with NOEMA”
12.0h NOEMA Band 3 follow-up of JWST high- z candidates (W22EG)
- “A conclusive detection of galaxy overdensities around the first ultra-luminous quasars”
30.0h MUSE/VLT - 8 quasars fields with MUSE WFM-NOAO (110.23UT)
- “The Large-Scale Environment of the First Quasars”
14.6h ALMA - Band 6 mosaics (six pointings) in 7 quasar fields (2021.1.01557.S)
- “Extreme Super-Eddington Star Formation in a Quasar Host at $z \sim 7$?”
16.3h ALMA - 0.”04 resolution Band 8/9 continuum imaging (2021.1.01350.S)
- “A search for the missing gravitationally-lensed $z \sim 6$ quasars”,
4 nights on EFOSC2/NTT - Spectroscopic follow-up of ~ 40 candidates (0104.A-0662(A))

As Co-I: 197.7h on the VLT (MUSE/XShooter/FORS2), 180h with ALMA, 155h with JWST (+1 Large Program ~ 300 h), 22h on MEGARA/GTC, 2×0.5 nights on Subaru/IRCS+LGS-AO, 92h on NOEMA, 38h on GEMINI GMOS, 2 orbits on HST, 333 ks on CHANDRA ACIS-S

OBSERVING AND TECHNICAL EXPERIENCE

- Observing experience: 3 nights on Keck/MOSFIRE, 3 nights on Keck/DEIMOS, 4 nights on NTT/ EFOSC2, 3 nights (remote) on MEGARA/GTC
- Data reduction & analysis: optical/NIR multi/long-slit spectroscopy (DEIMOS/Keck, MOSFIRE/Keck, EFOSC2/NTT, GMOS/Gemini, Flamings2/Gemini), optical IFU (MUSE/VLT), mm interferometry (ALMA/NOEMA), JWST NIRISS/NIRCam WFSS and imaging data, JWST NIRSpec IFU
- Current main developer and maintainer of [interferopy](#); an open-source, public python library for radio/mm interferometry data analysis.
- Computing: Python, C++, Fortran, IDL
- Astronomy software: CASA, GILDAS, ESORex, ESOReflex, PyeIt, DS9, Topcat, Source-Extractor, VPFit, GalSim, GALFIT, Grizli, MIRAGE, JWST pipeline

- Summer schools: European Radio Interferometry School 2019, Chalmers, Gothenburg / Astrostat 2021, Penn State (Virtual) / ISM Galaxies 2021, Marseille (Virtual)

STUDENTS SUPERVISION

- Lavinia Arpaia, MSc semester project at UNIGE, 2024.
- Alexandre Pozzi, MSc semester project at UNIGE, 2023.
- Xander Byrne, MPA summer internship 2022, 1 publication accepted in MNRAS ([paper here](#)). Xander is now a PhD student at the University of Cambridge.

TEACHING

Guest Lecturer - Galaxies & Cosmology II <i>Guest Lecture on the Epoch of Reionisation (MSc level class)</i> Spring 2024	University of Geneva
Tutorial Assistant <i>Classical Mechanics Tutorials</i> 2019	University College London
Tutorial Assistant <i>Physics Practical Labs</i> 2016-2017	Ecole Polytechnique Fédérale de Lausanne
Tutorial Assistant <i>General Physics for Engineers Tutorials</i> 2013-2016	Ecole Polytechnique Fédérale de Lausanne

PROFESSIONAL SERVICE

Saas-Fee Advanced Lecture 2025 Co-Organiser January 2025	Saas-Fee, Switzerland
EAS 2024 Special Session 1 Co-Chair July 2024	Padova, Italy
EPFL-UNIGE Journal Club Organiser September 2023 - Present	UNIGE, Geneva
Galaxy Coffee Seminar Organiser August 2021 - December 2022	MPIA, Heidelberg
Walter Group Meetings Organiser August 2021 - December 2022	MPIA, Heidelberg
ApJ/AJ Reviewer since 2021	AAS Journals, Washington DC USA
MNRAS Reviewer since 2020	MNRAS, London
Astronomy PhD Student Representative	University College London

CONFERENCE AND SEMINAR TALKS

Invited Talks:

Cake Talk - DAWN, Copenhagen	May 2024
<i>Probing early galaxy formation with an unbiased sample of $6.8 < z < 9$ [OIII] emitters</i>	
Galaxies Discussion Group - KICC, Cambridge	October 2022
<i>A resolved view of $z > 6$ quasar host galaxies</i>	
Extragalactic Seminar - UCL, London	October 2022
<i>A 100-300 pc view of $z > 6.5$ quasar host galaxies</i>	
Young Astronomers on AGN 2022 - DIPC, San Sebastian	October 2022
<i>Quasar Host Galaxies at Cosmic Dawn</i>	
Astronomy Seminar - University of Southampton	March 2022
<i>Quasar Host Galaxies at Cosmic Dawn</i>	
Königstuhl Colloquium - MPIA, Heidelberg	April 2021
<i>Finding the sources of reionisation</i>	
Galaxies Discussion Group - KICC, Cambridge	April 2020
<i>IGM-galaxy cross-correlations during Reionization</i>	
MPIA Galaxy Coffee - MPIA, Heidelberg	November 2019
<i>Probing reionisation with cross-correlations of galaxies and the Lyman-α forest at $z \sim 6$</i>	
London Cosmology Discussion Meeting - RAS, London	November 2018
<i>Probing the epoch of reionisation with cross-correlations of high-redshift galaxies and the IGM transmission</i>	

Contributed Talks:

EAS 2023 - Krakow, Poland	July 2023
<i>Contributed talks in Symposium 12, Special Session 22 & Poster Presentation in Symposium 8</i>	
First Light Conference- MIT, Boston	June 2023
<i>A complete census of [OIII]+Hβ emitters at $6.7 < z < 9$ with JWST</i>	
Exploring the evolving Universe (RSE@70+) - IoP, London	June 2023
<i>A complete census of [OIII]+Hβ emitters at $6.7 < z < 9$ with JWST</i>	
From Stars to Galaxies II - Gothenburg, Sweden	June 2022
<i>Hyper-resolution observations of $z \sim 6.8$ quasar hosts</i>	
Learning the high-z Universe - Sazerac Online Conferece	February 2022
<i>Learning from Quasars with VAEs</i>	
Quasars and Galaxies Through Cosmic Time - Chile / Online	February 2022
<i>Constraining galaxy overdensities around three $z \sim 6.5$ quasars with ALMA and MUSE</i>	
RAS Specialist Day - RAS London / Online	January 2022
<i>Measuring the contribution of $z \sim 6$ galaxies to reionisation with galaxy-IGM cross-correlations</i>	
EAS 2021 - Session 2 - Leiden Observatory / Online	July 2021
<i>High-redshift quasar hosts viewed by ALMA and NOEMA</i>	
EAS 2021 - Session 7 - Leiden Observatory / Online	July 2021
<i>Measuring escape fractions at $z \sim 6$ with quasar spectra</i>	
SAZERAC 2020 - Online	July 2020
<i>Measuring the ionising photon escape fraction of $z \sim 6$ galaxies</i>	

EAS 2020 - Leiden Observatory / Online	June 2020
<i>Discovery of a double-peaked Lyman alpha emission in a galaxy at $z = 6.802$</i>	
KICC 10th Anniversary Symposium - KICC, Cambridge	September 2019
<i>Probing the epoch of reionisation with cross-correlations of high-redshift galaxies and the IGM transmission</i>	
EAS 2019 (Session 2) - Lyon, France	June 2019
<i>Evidence for quasar evolution: rest-frame UV broad lines shifts at $1.5 < z < 7.5$</i>	
EAS 2019 (Session 3) - Lyon, France	June 2019
<i>A new route to the contribution to reionisation of subluminal $z \sim 6$ galaxies</i>	
What matters between galaxies? - Abbazia di Spinato, Firenze, Italy	June 2019
<i>Metal-tracing the sources of reionisation</i>	
IGM2018: Revealing Cosmology and Reionization History with the Intergalactic Medium - Kavli IPMU, Kashiwa, Japan	September 2018
<i>Faint galaxies reionising the IGM at $z \sim 5$: metal-tracing the sources of reionisation</i>	
European Week of Astrophysics and Astronomy 2018 - Liverpool, UK	March 2018
<i>Poster: Cross-correlating CIV absorbers with the Lyman-α forest</i>	

OUTREACH

Geneva Observatory visits	University of Geneva
<i>Visits for general public (from 10- to 99-years)</i>	
2024 - present	
Astronomy On Tap	University College London
<i>Co-founder and online host (during Covid-19)</i>	
2020	
Diploma Club Seminar Organiser	University College London
<i>Organiser of a seminar series for graduates of the UCL evening class</i>	
<i>Astronomy course open to the general public</i>	
2019 - 2020	
ORBYTS: Researcher in schools program	Various London highschools
<i>Outreach programs for highschool pupils of 10 weeks of lectures and research on original data</i>	
2017 - 2019	
Mid-Kent Astronomical Society	Bredhurst Village Hall
<i>Outreach talk: Galaxies in the First billion years</i>	
January 31 2020	
Bounce Back RAS200 Project	HMP Brixton
<i>Astronomy outreach to inmates of a London prison in collaboration with the Royal Astronomical Society and the Bounce Back foundation</i>	
November 4 2019	
Future Frontiers Event Careers Networking Event	University City London
<i>Day of networking/career advice to London pupils from underprivileged background</i>	
July 2019	
International Day of Light / UCL	University College London
<i>Day of outreach shows and demonstrations for secondary school pupils</i>	
May 2018	

PRESS COVERAGE

- November 2022: "Dans les coulisses des données du télescope spatial James Webb": radio interview and web article with the Swiss public broadcasting organisation RTS on the analysis of early JWST data ([article](#) and [radio interview in French](#))

- July 2021: "Cosmic dawn occurred 250 to 350 million years after Big Bang" press release linked to preprint arxiv.org/abs/2104.08168. Covered by the [BBC press](#)/TV/radio, [the Guardian](#), the [Daily Mail](#), the [Evening Standard](#) and other specialised media. Live interview with BBC World News TV (24/06/21).
- July 2020: EAS press release "Discovery of a luminous galaxy reionizing the intergalactic medium 13 billion years ago", covered by [specialised internet media](#).