

Geneva Observatory
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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: IGM Reionisation, First Galaxies, First 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

23 (7 first-author) refereed papers published in major astronomical journals (A&A, MNRAS, ApJ, Nature) since 2018 (2019), totalling 466 (164) citations for an h-index of 12 (7). A full list of my publications can be found on [NASA ADS](#) or my [ORCID](#) profile.

AWARDED TELESCOPE TIME

As PI:

- “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 in 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 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: 50.7h on the VLT (MUSE/XShooter/FORS2), 52.8h with ALMA, 61.6h with JWST/NIRCam, 22h on MEGARA/GTC, 2×0.5 nights on Subaru/IRCS+LGS-AO, 92h on NOEMA, 1.6h on GEMINI GMOS, 2 orbits on HST

OBSERVING AND TECHNICAL EXPERIENCE

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

TALKS

Invited Talks:

Galaxies Discussion Group

KICC, Cambridge

A resolved view of $z > 6$ quasar host galaxies

October 2022

Young Astronomers on AGN 2022

Donostia International Physics Center

Quasar Host Galaxies at Cosmic Dawn

October 2022

Southampton Astronomy Seminar

University of Southampton

Quasar Host Galaxies at Cosmic Dawn

March 2022

Königstuhl Colloquium

MPIA, Heidelberg

Finding the sources of reionisation

April 2021

Galaxies Discussion Group

KICC, Cambridge

IGM-galaxy cross-correlations during Reionization

April 2020

MPIA Galaxy Coffee

MPIA Heidelberg

Probing reionisation with cross-correlations of galaxies and the Lyman- α forest at $z \sim 6$

November 2019

London Cosmology Discussion Meeting

Royal Astronomical Society, London, UK

Probing the epoch of reionisation with cross-correlations of high-redshift galaxies and the IGM transmission

November 2018

Contributed:

Extragalactic Seminar

UCL, London

A 100-300 pc view of $z > 6.5$ quasar host galaxies

October 2022

From Stars to Galaxies II

Gothenburg, Sweden

Hyper-resolution observations of $z \sim 6.8$ quasar hosts

June 2022

Sazerac Sip - Learning the high- z Universe

Sazerac Conference / Online

Learning from Quasars with VAEs

February 2022

Quasars and Galaxies Through Cosmic Time

Chile / Online

Constraining galaxy overdensities around three $z \sim 6.5$ quasars with ALMA and MUSE

February 2022

RAS Specialist Day - Production and Escape of LyC photons

RAS London / Online

Measuring the contribution of $z \sim 6$ galaxies to reionisation with galaxy-IGM cross-correlations

January 2022

EAS 2021 - Session 2

Leiden Observatory / Online

High-redshift quasar hosts viewed by ALMA and NOEMA

July 2021

EAS 2021 - Session 7

Leiden Observatory / Online

Measuring escape fractions at $z \sim 6$ with quasar spectra

July 2021

SAZERAC 2020

Online

Measuring the ionising photon escape fraction of $z \sim 6$ galaxies

July 2020

EAS 2020

Leiden Observatory / Online

Discovery of a double-peaked Lyman alpha emission in a galaxy at $z = 6.802$

June 2020

KICC 10th Anniversary Symposium

Kavli Institute Cambridge, UK

Probing the epoch of reionisation with cross-correlations of high-redshift galaxies and the IGM transmission

September 2019

European Week of Astrophysics and Astronomy 2019 (S2)

Lyon, France

Evidence for quasar evolution: rest-frame UV broad lines shifts at $1.5 < z < 7.5$

June 2019

European Week of Astrophysics and Astronomy 2019 (S3)

Lyon, France

A new route to the contribution to reionisation of subluminal $z \sim 6$ galaxies

June 2019

What matters between galaxies?

Abbazia di Spineto, Firenze, Italy

Metal-tracing the sources of reionisation

June 2019

IGM2018: Revealing Cosmology and Reionization History with the Intergalactic Medium

Kavli IPMU, Kashiwa, Japan

Lightning talk: Faint galaxies reionising the IGM at $z \sim 5$: metal-tracing the sources of reionisation

September 2018

European Week of Astrophysics and Astronomy 2018

Liverpool, UK

Poster: Cross-correlating CIV absorbers with the Lyman- α forest

March 2018

TEACHING

Tutorial Assistant

University College London

Classical Mechanics Tutorials

2019

Tutorial Assistant

Ecole Polytechnique Fédérale de Lausanne

Physics Practical Labs

2016-2017

Tutorial Assistant

Ecole Polytechnique Fédérale de Lausanne

General Physics for Engineers Tutorials

2013-2016

PROFESSIONAL SERVICE

ApJ/AJ Reviewer

AAS Journals, Washington DC USA

since 2021

Walter Group Meetings Organiser

MPIA, Heidelberg

August 2021 - December 2022

Galaxy Coffee Seminar Organiser

MPIA, Heidelberg

August 2021 - December 2022

MNRAS Reviewer

MNRAS, London

since 2020

Astronomy PhD student representative

University College London

OUTREACH

Astronomy On Tap

University College London

Co-founder and online host

2020

Diploma Club Seminar Organiser

University College London

Organiser of a seminar series for graduates of the UCL evening class

Astronomy course open to the general public

2019 - 2020

ORBYTS: Researcher in schools program

Various London highschoools

Outreach programs for highschoool pupils of 10 weeks of lectures and research on original data

2017 - 2019

Mid-Kent Astronomical Society

Bredhurst Village Hall

Outreach talk: Galaxies in the First billion years

January 31 2020

Bounce Back RAS200 Project

HMP Brixton

Astronomy outreach to inmates of a London prison in collaboration with the Royal Astronomical Society and the Bounce Back foundation

November 4 2019

Future Frontiers Event Careers Networking Event

University City London

Day of networking/career advice to London pupils from underprivileged background

July 2019

International Day of Light / UCL

University College London

Day of outreach shows and demonstrations for secondary school pupils

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. Interviewed live with the 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](#).