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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 understand the properties of the first galaxies and black holes in the first billion years of the Universe, their impact on cosmic hydrogen reionisation and the early enrichment of the circumgalactic/intergalactic medium.

Keywords: Reionisation, First Galaxies, First Quasars, IGM/CGM Absorption studies

EMPLOYMENT

Postdoctoral Researcher Max-Planck Institute for Astronomy, Germany
Galaxies and Quasars in the First Billion Years
October 2020 -

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 Artifical 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

[1] **Meyer, R. A.**, N. Laporte, R. S. Ellis, A. Verhamme, and Tt. Garel. Double-peaked Lyman-α emission at z = 6.803: a reionisation-era galaxy self-ionising its local H II bubble. *MNRAS*, 2020 in press.

[2] S. E. I. Bosman, K. Kakiichi, **Meyer, R. A.**, M. Gronke, N. Laporte, and R. S. Ellis. Three Lyα Emitting Galaxies within a Quasar Proximity Zone at z $\sim$ 5.8. *ApJ*, 896(1):49, June 2020.

[3] **Meyer, R. A.**, S. E. I. Bosman, and R. S. Ellis. New constraints on quasar evolution: broad-line velocity shifts over $1.5 < z < 7.5$. *MNRAS*, 487(3):3305–3323, Aug 2019.

[4] **Meyer, R. A.**, T. Delubac, J.-P. Kneib, and F. Courbin. Quasi-stellar objects acting as potential strong gravitational lenses in the SDSS-III BOSS survey. *A&A*, 625:A56, May 2019.

[5] **Meyer, R. A.**, S. E. I. Bosman, K. Kakiichi, and R. S. Ellis. The role of galaxies and AGNs in reionizing the IGM - II. Metal-tracing the faint sources of reionization at $5 < z < 6$. *MNRAS*, 483:19–37, February 2019.

[6] K. Kakiichi, R. S. Ellis, N. Laporte, A. Zitrin, A.-C. Eilers, E. Ryan-Weber, **Meyer, R. A.**, B. Robertson, D. P. Stark, and S. E. I. Bosman. The role of galaxies and AGN in reionizing the IGM - I. Keck spectroscopy of $5 < z < 7$ galaxies in the QSO field J1148+5251. *MNRAS*, 479:43–63, September 2018.

[7] I. Valtchanov, R. Hopwood, G. Bendo, C. Benson, L. Conversi, T. Fulton, M. J. Griffin, T. Joubaud, T. Lim, N. Lu, N. Marchili, G. Makiwa, **Meyer, R. A.**, D. A. Naylor, C. North, A. Papageorgiou, C. Pearson, E. T. Polehampton, J. Scott, B. Schulz, L. D. Spencer, M. H. D. van der Wiel, and R. Wu. Correcting the extended-source calibration for the Herschel-SPIRE Fourier-transform spectrometer. *MNRAS*, 475:321–330, March 2018.

TALKS

Invited:

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:

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 subluminous $z \sim 6$ 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

AWARDED TELESCOPE TIME

- Can luminous $z > 6$ galaxies self-ionise their own bubbles ?
  22h on MEGARA/GTC, PI : Jess Gallego Maestro

- A search for the missing gravitationally-lensed $z \sim 6$ quasars (0104.A-0662(A)), **4 nights on EFOSC2/NTT**, PI: **R. A. Meyer**
- Probing Cosmic Dawn: Estimating the Stellar Ages of $z \sim 9$ Galaxies (0104.A-0028 (A)), **15h on XShooter/VLT**, PI: R. S. Ellis
- Probing Cosmic Dawn:Estimating the Stellar Ages of $z \sim 9$ Galaxies' (2019.1.00061.S), **12.6h on ALMA**, PI: R. S. Ellis
- High-redshift CIV hosts: revealing a new class of early galaxies with ALMA (2019.1.00374.S), **14.6h on ALMA**, PI: S. E. I. Bosman
- The Birth of Giants: Assembly of the First Massive Galaxies (2019.1.00111.S), **25.6h on ALMA**, PI: B. Venemans
- A New Route to Determining the Escape Fraction of Ionising Photons from Sub-Luminous Star-Forming Galaxies at the End of Cosmic Reionisation, (P103A), **23.2h on VLT/MUSE**, PI: R. S. Ellis
- What is causing the first ionised island at z = 5.7?, (P103A), **12.5h on VLT/FORS2**, PI: S. E. I. Bosman
- Mass distribution of quasars revealed through gravitational lensing, (S19A), **2x0.5 nights on Subaru/IRCS+LGS-AO**, PI: C. E. Rusu

OBSERVING AND TECHNICAL EXPERIENCE

- Observing: 3 nights on Keck/MOSFIRE, 3 nights on Keck/DEIMOS, 4 nights on NTT/EFOSC2
- Data reduction: multi-slit spectroscopy (DEIMOS/Keck, MOSFIRE/Keck), IFU (MUSE/VLT)
- Data analysis: Spectroscopy (optical/near-infrared), 3D datacubes (ALMA,MUSE), machine learning, neural networks, photometry
- Computing: Python, C++, Fortran, IDL
- Astronomy software: CASA, ESORex, ESOReflex, ds9, Topcat, SExtractor, VPFit

SUMMER SCHOOLS

European Radio Interferometry School 2019 Chalmers, Gothenburg
Proposal planning, calibration, reduction and analysis of radio interferometry data
7-11 October 2019

OUTREACH

Astronomy On Tap University College London
Co-founder and online MC
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 highschools
Outreach programs for highschool 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

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

MNRAS Reviewer MNRAS

since 2020

Astronomy PhD students representative University College London

2017- 2020

REFERENCES

Prof. Richard S. Ellis
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A/Prof. Daniel P. Stark
University of Arizona
Department of Astronomy & Steward Observatory
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