

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, Absorption studies

EDUCATION

PhD in Astrophysics

University College London, United Kingdom

Thesis: The Influence of Galaxies and Quasars on the High Redshift Intergalactic Medium

Supervisor: Prof. Richard S. Ellis

2017- September 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

- [1] R. A. **Meyer**, 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.
- [2] R. A. **Meyer**, 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.
- [3] R. A. **Meyer**, 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.
- [4] K. Kakiichi, R. S. Ellis, N. Laporte, A. Zitrin, A.-C. Eilers, E. Ryan-Weber, R. A. **Meyer**, 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.
- [5] 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, R. A. **Meyer**, 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.

Papers to be submitted:

- **Meyer, R. A.**, Kakiichi K., Bosman S. E. I., Ellis, R. S., Laporte N., Robertson B., Zitrin A., Ryan-Weber E., Inoue A. & Mawatari K. , *The role of galaxies and AGN in reionising the IGM - III : IGM-galaxy cross-correlations at $z \sim 6$ from 8 quasar fields with DEIMOS and MUSE*
- Bosman S. E. I., Kakiichi K., **Meyer, R. A.**, Gronke M., Laporte N. & Ellis R. S., *Three Lyman- α emitting galaxies within a quasar proximity zone at $z \sim 5.8$*

TALKS

Invited:

ESO Vitacura

ESO Santiago Chile

A new route to determining the ionising contribution to reionisation of the $z \sim 6$ faint galaxy population

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:

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

AWARDED TELESCOPE TIME

- 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
- Data reduction: multi-slit spectroscopy (DEIMOS/Keck, MOSFIRE/Keck), IFU (MUSE/VLT)
- Data analysis: Spectroscopy (optical/near-infrared), 3D datacubes (ALMA,MUSE), photometry, machine learning, neural networks
- 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

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 - present

ORBYTS: Researcher in schools program

Various London highschoools

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

2017 - present

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

PROFESSIONAL SERVICE

Astronomy PhD students representative
2017- present

University College London

REFERENCES

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