

Yuxiang Qin

Curriculum vitae (version: July 2021)

Institute: The University of Melbourne
School of Physics, Parkville VIC 3010

☎ +61 0406851288

☎ Skype qyx268

📧 qyx268.github.io/homepage_unimelb

✉ yuxiang.l.qin@gmail.com

✉ yuxiang.qin@unimelb.edu.au

Academic History

2021.03

ASTRO-3D Postdoctoral Researcher, *The University of Melbourne (UniMelb)*, Australia.

Research Interests: First galaxies, 21-cm, Reionization, High-Redshift, Cosmological Simulation.

Advisor: Prof. J. Stuart B. Wyithe from UniMelb

2018.09

2021.02

Postdoctoral Researcher, *Scuola Normale Superiore (SNS)*, Italy.

Research Interests: 21-cm, reionization, first galaxies, CMB, Lyman- α forest, Bayesian Inference

Advisor: Prof. Andrei Mesinger from SNS.

2014.10

2018.07

Ph.D. Astrophysics, *UniMelb*, Australia.

Thesis: *Dark-ages Reionization And Galaxy formation Observables from Numerical Simulations.*

Supervisor: Prof. J. Stuart B. Wyithe from UniMelb.

2010.09

2014.06

B.S. Astronomy, *The University of Science and Technology of China (USTC)*, China.

Thesis: *UV Radiation from Stars.*

Supervisor: Prof. Jifeng Liu from the National Astronomical Observatories, Chinese Academy of Sciences (NAOC).

Awards/Computer Grants

2021.07

2022.06

Supercomputing Time, *2.1M CPU hours+*, XSEDE NSF, U.S., PI: Steven Murray from Arizona State University (ASU).

2021.07

2022.06

Supercomputing Time, *5.2M SU*, Gadi, National Computational Infrastructure, Australia.

2021.03

Observational Time, *NIRCam 53 hours*, James Webb Space Telescope (JWST) Cycle 1, PI: Pascal Oesch from The University of Geneva.

2021.03

Observational Time, *NIRCam 7.1 hours*, JWST Cycle 1, PI: Rohan Naidu from Harvard University.

2021.01

2021.07

Supercomputing Time, *5M CPU hours*, Centre for High Performance Computing, South Africa, PI: Mario Santos from The University of the Western Cape.

2020.12

2021.12

Supercomputing Time, *50k SU+*, XSEDE Startup NSF, U.S., PI: Steven Murray from ASU.

2019.11

Supercomputing Time, *100k CPU hours*, PRACE Preparatory.

2019.05

Supercomputing Time, *250k node (x68 CPU) hours*, CINECA - Italian SuperComputing Resource Allocation.

2018.04

Postgraduate Writing-Up Award, *AUD 5,000*, The Albert Shimmins Fund, UniMelb.

2016.10

Jean Laby Ph.D. Travelling Scholarship, *AUD 5,000*, UniMelb.

2016.08

Science Abroad Travelling Scholarship, *AUD 1,500*, UniMelb.

2016.05

Supercomputing Time, *500k CPU hours*, The Pawsey Supercomputing Centre.

2014.11

2018.4

Goldworthy Scholarship, *AUD 30,000 p.a.*, UniMelb.

2014.10

2014.11

Melbourne International Research Scholarship, *AUD 25,392 p.a.*, UniMelb.

Published Articles (ORCID: 0000-0002-4314-1810)

- [Y. Qin](#), A. Mesinger, S.E.I. Bosman, M. Viel.
Reionization and galaxy inference from the high-redshift Ly α forest
Monthly Notices of the Royal Astronomical Society (MNRAS; accepted), arXiv ID: 2101.09033.
- [Y. Qin](#), A. Mesinger, B. Greig, J. Park.
A tale of two sites -II: Inferring the properties of minihalo-hosted galaxies with upcoming 21-cm interferometers
MNRAS (2021) 501 (4): 4748-4758.
- S.G. Murray, B. Greig, A. Mesinger, J.B. Muñoz, [Y. Qin](#), J. Park, C.A. Watkinson.
21cmFAST v3: A Python-integrated C code for generating 3D realizations of the cosmic 21cm signal
Journal of Open Source Software (2020) 5 (54): 2582.
- [Y. Qin](#), V. Poulin, A. Mesinger, B. Greig, S. Murray and J. Park.
Reionization inference from the CMB optical depth and E-mode polarization power spectra
MNRAS (2020) 499 (1): 550-558.
- [Y. Qin](#), A. Mesinger, J. Park, B. Greig, J.B. Muñoz .
A tale of two sites -I: Inferring the properties of minihalo-hosted galaxies from current observations
MNRAS (2020) 495 (1): 123-140.
- M.A. Marshall, S.J. Mutch, [Y. Qin](#), G.B. Poole and J.S.B. Wyithe.
Dark-ages reionization and galaxy formation simulation-XVIII. The high-redshift evolution of black holes and their host galaxies
MNRAS (2020) 494 (2): 2747-2759.
- J.E. Davies, S.J. Mutch, [Y. Qin](#), A. Mesinger, G.B. Poole and J.S.B. Wyithe.
Dark-ages reionization and galaxy formation simulation-XVI. The thermal memory of Reionisation
MNRAS (2019) 489 (1): 977-992.
- M.A. Marshall, S.J. Mutch, [Y. Qin](#), G.B. Poole and J.S.B. Wyithe.
Dark-ages reionization and galaxy formation simulation-XVII. Sizes, angular momenta and morphologies of high redshift galaxies
MNRAS (2019) 488 (2): 1941-1959.
- [Y. Qin](#), A.R. Duffy, S.J. Mutch, G.B. Poole, A. Mesinger and J.S.B. Wyithe.
Dark-ages reionization and galaxy formation simulation-XV. Stellar evolution and feedback in dwarf galaxies at high redshift.
MNRAS (2019) 487 (2): 1946-1963.
- S. Amarantidis, J. Afonso, H. Messias, B. Henriques, A. Griffin, C. Lacey, C.P. Lagos, V. Gonzalez-Perez, Y. Dubois, M. Volonteri, I. Matute, C. Pappalardo, [Y. Qin](#), R. Chary and R.P. Norris.
The first Super Massive Black Holes: indications from models for future observations
MNRAS (2018) 485 (2): 2694-2709.
- [Y. Qiu](#), J.S.B. Wyithe, P.A. Oesch, S.J. Mutch, [Y. Qin](#), I.L. Rychard, J. Bouwens, M. Stefanon and G.D. Illingworth.
Dependence of galaxy clustering on UV-luminosity and stellar mass at $z \sim 4 - 7$.
MNRAS (2018) 481 (4): 4885-4894.
- [Y. Qin](#), A.R. Duffy, S.J. Mutch, G.B. Poole, P.M. Geil, A. Mesinger and J.S.B. Wyithe.
Dark-ages reionization and galaxy formation simulation-XIV. Gas accretion, cooling and star formation in dwarf galaxies at high redshift.
MNRAS (2018) 477 (1): 1318-1335.

- Y. Qin, S.J. Mutch, A.R. Duffy, P.M. Geil, G.B. Poole, A. Mesinger and J.S.B. Wyithe.
Dark-ages reionization and galaxy formation simulation-XIII. AGN quenching of high-redshift star formation in ZF-COSMOS-20115.
MNRAS (2017) 471 (4): 4345-4354.
- Y. Qin, S.J. Mutch, G.B. Poole, C. Liu, A.R. Duffy, P.M. Geil, P.W. Angel, A. Mesinger and J.S.B. Wyithe.
Dark-ages reionization and galaxy formation simulation-X. The small contribution of quasars to reionization.
MNRAS (2017) 472 (2): 2009-2027.
- Y. Qin, A.R. Duffy, S.J. Mutch, G.B. Poole, P.W. Angel, P.M. Geil, A. Mesinger and J.S.B. Wyithe.
Dark-ages reionization and galaxy formation simulation-VIII. Suppressed growth of dark matter haloes during the Epoch of Reionization.
MNRAS (2017) 467 (2): 1678-1693.
- Y Bai, J. Liu, J. Wicker, S. Wang, J. Guo, Y. Qin, L. He, J. Wang, Y. Wu, Y. Dong, Y. Zhang, Y. Hou, Y. Wang and Z. Cao.
The UV Emission of Stars in LAMOST Survey. I. Catalogs
The Astrophysical Journal Supplement Series (2018) 235 (1): 16.
- J. Guo, J. Liu, S. Wang, Y. Wu, and Y. Qin.
An active M star with X-ray double flares disguised as an ultra-luminous X-ray source.
Research in Astronomy and Astrophysics (2016) 16 (2): 034.

Presentations

- 2021.07 **Reionization and galaxy inference from the high-redshift Lyman Alpha forest**, *European Astronomical Society Annual Meeting*, Telecon.
- 2021.04 **Reionization inference from the CMB optical depth and E-mode polarization power spectra**, *SAZERAC: Reionisation and the CMB*, Telecon.
- 2021.03 **What Lyman Alpha forests tell us about reionization and high-redshift galaxies**, *2021 SKA Science Conference*, Telecon.
- 2021.03 **Reionization and galaxy inference from the high-redshift Lyman Alpha forest**, *XQR-30 General Meeting*, Telecon.
- 2020.12 **Inferring the properties of minihalo-hosted galaxies using 21-cm power spectra from the SKA**, *SKA CD/EoR Science Team*, Telecon.
- 2020.11 **Inferring the properties of minihalo-hosted galaxies from current observations and upcoming 21-cm interferometers**, *Galaxy Crawl (webinar)*, The University of Arizona, the US.
- 2020.01 **First sources of light**, *Next-Generation Cosmology with Next-Generation Radio Telescopes* Sexten, Italy & *The First Billion Years of the Universe* The Indian Institute of Technology Indore, India.
- 2019.09 **Minihalo galaxies at high redshifts**, *21cmFAST developer workshop*, SNS, Italy.
- 2019.09 **Including a second population in 21cmFAST**, *HERA Annual Meeting*, Cambridge, the UK.
- 2019.09 **Modelling the Cosmic Dawn**, *Seminars*, NAOC & Purple Mountain Observatory, China.
- 2019.06 **To Illuminate the Dark Ages**, *Astrophysics Colloquia*, UniMelb & Swinburne University of Technology, Australia.

- 2019.05 **21cm Cosmology and the first stars – yes! you need to know the baryonic physics**, *News from the dark*, The University of Montpellier, France.
- 2019.04 **Probing the 21-cm signature of first stars**, *The 2019 SKA Science Meeting*, Alderley Edge, the UK.
- 2018.06 **Massive black holes at high redshift**, *The 34th IAP Conference*, The Institut d’Astrophysique de Paris, France.
- 2018.06 **The contribution of ionising photons during the Epoch of Reionization**, *Rise and shine: galaxies in the epoch of reionization*, The Universite de Strasbourg, France.
- 2018.06 **Dark-ages Reionization And Galaxy formation Observables from Numerical Simulations**, *Seminar*, SNS, Italy.
- 2018.05 **Semi-analytic modelling of high-redshift supermassive blackholes**, *2018 Science Meeting of the Australian Research Council (ARC) Centre of Excellence for All-sky Astrophysics 3D (ASTRO 3D)*, The Australian National University (ANU), Australia.
- 2018.03 **The 2018 Antarctica Explorer**, *Seminar*, UniMelb, Australia.
- 2017.09 **AGN quenching of high redshift star formation in ZF-COSMOS- 20115**, *ACAMAR 3: Australia-China Workshop on Astrophysics*, Hobart, Australia.
- 2017.08 **Quasars and cosmic reionization**, *From Black Hole to Environment: Galaxy Evolution across Multiple Wavelengths*, ANU, Australia.
- 2017.07 **AGN quenching of high redshift star formation in ZF-COSMOS-20115**, *The 24th Astronomical Society of Australia (ASA) Annual Scientific Meeting*, ANU, Australia.
- 2017.02 **The small contribution of quasars to reionization**, *The 11th Australian National Institute for Theoretical Astrophysics (ANITA) Workshop*, The University of Tasmania, Australia.
- 2016.10 **Dark-ages Reionization And Galaxy Observables from Numerical Simulations**, *Cosmology Seminar*, The Max-Planck-Institute for Astrophysics (MPA), Germany.
- 2016.02 **Suppressed Growth of Dark Matter Halos during the Epoch of Reionization**, *The 10th ANITA Workshop*, Monash University, Australia.

Experiences

- 2021.06 **Outreach Talk**, *Physics Work Experience for Year 10 students*, UniMelb.
- 2021.03 **Coordinator**, *Astro Colloquia*, UniMelb.
- 2020.09 **Journal Referee**, *MNRAS*.
- 2020.05 **Journal Referee**, *The Astrophysical Journal*.
- 2019.12 **Coordinator**, *Astro Colloquia*, SNS.
- 2021.02 **Coordinator**, *Arxiv Daily Meeting*, SNS.
- 2019.12 **Outreach Experiment and Talk**, *Antarctica Explorers with Qantas flight*, UniMelb.
- 2018.02 **Outreach Volunteer**, *University Open Day*, UniMelb.
- 2017.08 **Lab Demonstrator**, *From the Solar System to the Universe*, UniMelb.
- 2017.10 **Lab Demonstrator**, *1st Year Physics Undergraduate Program - Fundamental*, UniMelb.
- 2017.05 **Lab Demonstrator**, *1st Year Physics Undergraduate Program - Fundamental*, UniMelb.

2016.05	2016.03	Lab Demonstrator , <i>1st Year Physics Undergraduate Program - Advanced</i> , UniMelb.
2017.03	2016.02	Coordinator , <i>Astro Group Meeting</i> , UniMelb.
2017.02	2015.11	Coordinator , <i>Simulation Group Lunch Meeting</i> , UniMelb.
2015.10	2015.08	Lab Demonstrator , <i>1st Year Physics Undergraduate Program - Biomedicine</i> , UniMelb.
2015.05	2015.03	Lab Demonstrator , <i>1st Year Physics Undergraduate Program - Standard</i> , UniMelb.

Programming Skills

- multi-threaded high-performance computing involving big dataset on large distributed platforms; high-skilled in C and PYTHON; author/major contributor to
 - ASTRODATAPY: a collective framework of astronomical data;
 - 21cmFAST: a fast, semi-numerical simulation of the high-redshift 21-cm signal;
 - 21CMMC: a Monte Carlo Markov Chain analysis tool for the epoch of reionization;
 - MERAXES: a semi-analytic model of galaxy formation.

References

Prof. Andrei Mesinger

Senior Researcher
 Cosmology Group
 SNS
<http://homepage.sns.it/mesinger>
 ✉ andrei.mesinger@sns.it
 ☎ (+39) 050 509 688

Prof. J. Stuart B. Wyithe

Head
 School of Physics
 UniMelb
www.ph.unimelb.edu.au/~swyithe
 ✉ swyithe@unimelb.edu.au
 ☎ +61 (0) 3 8344 5420