

Charles Liu

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EDUCATION

Ph.D. in Astrophysics, The University of Melbourne, Australia 2013 — 2017
Thesis: “Galaxy observables during the epoch of reionization from semi-analytic models”
Advisors: Prof. Stuart Wyithe and Dr. Simon Mutch

M.Sc. in Astrophysics, Peking University, China 2009 — 2012
Thesis: “The dynamical evolution of rotating star clusters with primordial binaries”
Advisors: Prof. Rainer Spurzem and Dr. M.B.N Kouwenhoven

B.Sc. in Physics, Lanzhou University, China 2004 — 2008
Thesis: “Preparation of alumina nanopowders”
Advisor: Prof. Jianguo Li

EXPERIENCE

Product engineer, Shroogal Pty Ltd (<http://shroogal.com.au/>) 2/2017 — Present

- Develop and implement algorithms for financial optimizations and projections;
- Generate client’s financial circumstances through simulations.
- Python, SQL and mongoDB are used.

Research member in *DRAGONS* project (<http://dragons.ph.unimelb.edu.au/>) 2013 — 2017

- Processed and analyzed large data (10^7 galaxies) from galaxy formation simulations;
- Developed codebase for modelling galaxy spectra and multi-band luminosity;
- Studied galaxy observable properties and compared them to observations;
- C, Python and Linux Shell Scripting were used.

Laboratory demonstrator, The University of Melbourne 2014 — 2016

- Prepared and demonstrated *First Year Physics Laboratory*;
- Processed experimental data using Microsoft Excel.

Research member in *Silk Road* project (<http://silkroad.bao.ac.cn/web/>) 2011 — 2012

- Ran direct N -body simulations (10^5 stars) of globular star clusters;
- Studied the dynamical evolution of star clusters and their binary systems;
- Fortran, IDL and Linux Shell Scripting were used.

PROGRAMMING SKILLS

Proficient: Fortran, C, Python, Linux Shell Scripting

Intermediate: SQL, MongoDB, IDL, Latex

Basic: R, C++, Excel, HTML

AWARDS

Melbourne International Engagement Awards	2013 — 2016
Melbourne International Fee Remission Scholarship	2013 — 2016
Academic Scholarships (Class II) of Peking University	2009 — 2012
Wusi Awards of Peking University	2011

RECENT ORAL PRESENTATIONS

50th ASA annual meeting, The University of Sydney, Australia	04/07/2016
10th ANITA Workshop and Summer School, Monash University, Australia	12/02/2016
Advanced Workshop on Cosmological Structures from Reionization to Galaxies, International Centre for Theoretical Physics, Italy	12/05/2015

PUBLICATIONS

Dark-ages reionization and galaxy formation simulation-IV. UV luminosity functions of high-redshift galaxies

Liu C., Mutch S. J., Angel P. W., Duffy A. R., Geil P. M., Poole G. B., Mesinger A., Wyithe J. S. B., MNRAS, Volume 462, Issue 1, p.235-249 (2016) [[link](#)]

Dark-ages reionization and galaxy formation simulation-VI. The origins and fate of the highest known redshift galaxy

Mutch S. J., **Liu C.**, Poole G. B., Geil P. M., Duffy A. R., Trenti M., Oesch P. A., Illingworth G. D., Mesinger A., Wyithe J. S. B., MNRAS, Volume 463, Issue 4, p.3556-3562 (2016) [[link](#)]

Dark-ages reionization and galaxy formation simulation-VII. The sizes of high-redshift galaxies

Liu C., Mutch S. J., Poole G. B., Angel P. W., Duffy A. R., Geil P. M., Mesinger A., Wyithe J. S. B., MNRAS, Volume 465, Issue 3, p.3134-3242 (2017) [[link](#)]

Dark-ages reionization and galaxy formation simulation X: The small contribution of quasars to reionization

Qin Y., Mutch S. J., Poole G. B., **Liu C.**, Angel P. W., Duffy A. R., Geil P. M., Mesinger A., Wyithe J. S. B., MNRAS, Volume 472, Issue 2, p.2009-2027 (2017). [[link](#)]

Dark-ages reionization and galaxy formation simulation XI: Clustering and halo masses of high redshift galaxies

Park J., Kim H., **Liu C.**, Trenti M., Duffy A. R., Geil P. M., Mutch S. J., Poole G. B., Mesinger A., Wyithe J. S. B., MNRAS, Volume 472, Issue 2, p.1995-2008 (2017). [[link](#)]

REFEREES

Prof. Stuart Wyithe

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Prof. Rychard Bouwens

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