Jiani Ding

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EDUCATION

- **University of California, Santa Cruz** Graduate student, Astronomy and Physics (2017-present)
- **University of Arizona** B.S., Astronomy and Physics (2013-2017)
  SUMMA CUM LAUDE 2017
  Outstanding Senior Award 06/2017
  Excellence in Undergraduate Research Award 06/2017

PUBLICATIONS AND POSTERS

- **J. Ding**, Z. Cai, X. Fan, *Constraining C iii] Emission in a Sample of Five Luminous z = 5.7 Galaxies*, ApJL, 838, L2 (2017)
- J. Yang, X. Fan, X. Bing, ..., **J. Ding**, *Discovery of 16 New z ~ 5.5 Quasars: Filling in the Redshift Gap of Quasar Color Selection.*, AJ, 153, 184-193 (2017)
- F. Wang, X. Fan, J. Yang, ..., **J. Ding**, *First Discoveries of z > 6 Quasars with the Decam Legacy Survey and Ukirt Hemisphere Survey.*, ApJ, 839, 27-34 (2017)
- **J. Ding**, Z. Cai, X. Fan, et al. *Constraining C iii] Emission in a Sample of Five Luminous z = 5.7 Galaxies*, AAS Poster, Jan 2017

HONORS AND AWARDS

- **Scholarships for Excellent Undergraduate**
  Galileo Circle Scholarship, College of Science, University of Arizona 2015,2016
  Purviance Award, Physics Department, University of Arizona 2016
  Weaver Research Award, Physics Department, University of Arizona 2016
  The Vesto Melvin Slipher Scholarship, Astronomy Department, University of Arizona 2016
  Purviance Scholarship, Astronomy Department, University of Arizona 2016
  Douglass, Andrew E Scholarship, Astronomy Department, University of Arizona 2015
  Langadas, Angelos C Scholarship, Astronomy Department, University of Arizona 2014
- **Awards for Excellent Undergraduate**
  Academic Year Highest Academic Distinction, College of Science, University of Arizona 2015
  Dean's List with Distinction, College of Science, University of Arizona 2014

ACADEMIC ACTIVITIES

- **Talks**
  Talk in Inter[Stellar and Galactic] Medium Program of Studies:
  University of California, Santa Cruz, CA, USA Nov 2016
  - CIII] Emission Lines from Galaxies in the Early Universe
  Undergraduate Physics Symposium Talk:
  University of Arizona, Tucson, AZ, USA May 2015
  - CIII] Emission Lines from Galaxies in the Early Universe
- **Observation Experience**
  2 nights on Bok telescope, Kitt Peak National Observatory Jul 2015
  3 nights on Bok telescope, Kitt Peak National Observatory Mar 2016
  1 night on LBT telescope May 2016

3 nights on MMT telescope May 2016

RESEARCH EXPERIENCE

○ **Research Assistant:**
Measuring the effective optical depth of Lyman series through a sample of quasars in EBOSS DR14 Sep 2017 - present
Advisor: Prof. Jason Prochaska, the University of California, Santa Cruz
and Prof. Piero Madau, the University of California, Santa Cruz

- 80000 quasars from the latest release of Sloan Digital Sky Survey data (SDSS DR14) are combined into 20 composites on redshift $2.3 < z < 5$.
- Then applying Markov chain Monte Carlo (MCMC) methods to fit the effective opacity $\tau_{Ly\alpha} = a(1+z)^b$ to the composite spectra.
- Finally, assuming a general redshift evolution in a form of $(1+z)^b$ for the $\tau_{\rm eff}$ of all the Lyman series, from the absolute value of $\tau_{Ly\alpha}$, we are able to fit a general $\tau_{\rm eff} = \sum_1^n a_n(1+z_n)^b$ for different Lyman series (a_n and z_n correspond to the constant amplitude and absorption redshift range for Lyα, Lyβ, Lyγ, etc, respectively).

○ **Research Assistant:**
Constraining CIII] emission in a statistical sample of five $z = 5.7$ galaxies Jul 2015 - Present
Advisor: Prof. Xiaohui Fan, Steward Observatory, University of Arizona
and Dr. Zheng Cai, UCO/Lick Observatory, UC Santa Cruz

- Reducing the *HST* data using MultiDrizzle and measuring the fluxes of CIII] emissions using SExtractor;
- Finding the measurement on equivalent width of the CIII] emission is 4.08 ± 2.19Å in one galaxy of our sample and putting the upper limits of both fluxes and equivalent widths on the galaxies that do not detect CIII] emissions;
- Summarizing and discussing the astrophysics implications of the results in a paper submitted to ApJL.

○ **Research Assistant:**
Studying the quasar host galaxy through an associate DLA system Jul 2016 - Present
Advisor: Prof. Xiaohui Fan, Steward Observatory, University of Arizona
and Dr. Zheng Cai, UCO/Lick Observatory, UC Santa Cruz

- Using MultiDrizzle package to reduce the *HST* data and using IRAF to form a PSF for GALFIT fitting;
- Using SExtractor to measure the photometry of the quasar host galaxy and using GALFIT to construct a two components minor merging model of the galaxy;
- Writing up results in a paper in preparation.

SKILLS

○ Programming: C, PYTHON

○ Software: IRAF, GALFIT, SExtractor, MultiDrizzle, LaTeX

○ Language: Mandarin(Native), English(fluent), Cantonese(Native)

OUTREACH & VOLUNTEER

○ **Time Step Meeting** Steward Observatory, Tucson, AZ, Sep 2015 - Present

- Being a member in "Time Step," a group focusing on professional development for undergraduates in STEM fields, also giving special support to students represented minorities.
- Giving talk "How to Study and Enjoy Life as a Astronomy and Physics Double Major" in "Time Step."

○ **University Service** Steward Observatory, Tucson, AZ, Aug 2016

- Giving advice and directions to new coming students in student orientation.