

Anahita Alavi

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EDUCATION

- **University of California Riverside**, Riverside, CA, US
Ph.D. in Physics and Astronomy, 2016
Advisor: Prof. Brian Siana
Dissertation: “Faint Star-forming Galaxies at the Peak Epoch of Star Formation: An Application of Strong Gravitational Lensing”
- **University of California Riverside**, Riverside, CA, US
Master in Physics and Astronomy, 2011
- **Sharif University of Technology**, Tehran, Iran
B.S. in Physics, 2009

RESEARCH EXPERIENCE

- **Postdoctoral scholar**, University of California Riverside, Riverside, CA, US
Oct 2016-present
Advisor: Prof. Brian Siana
- Spectroscopic studies of high-redshift dwarf galaxies at $1 < z < 3$
- **Graduate student researcher**, University of California Riverside, Riverside, CA, US,
2011-2016
Advisor: Prof. Brian Siana
- Evolution of the UV luminosity function at $1 < z < 3$
- Studying the physical properties of dwarf galaxies at high redshift (star formation history, UV spectral slope)
- HST (WFC3/UVIS & IR, ACS/WFC) data reduction, multi-band photometric catalogs
- Gravitational lensing models
- Ground-based spectroscopic observations with Keck/MOSFIRE and Keck/LRIS, data reduction and analysis
- **Undergraduate student researcher**, Sharif University of Technology, Tehran, Iran
2009-2010
Advisor: Prof. Sohrab Rahvar

RESEARCH INTEREST

Galaxy formation and evolution, Strong gravitational lensing, Dwarf galaxies (high redshift+local), Star formation and dust attenuation, Lyman continuum escape fraction of galaxies, Reionization

AWARDS

- Graduate Student Association (GSA) travel grant, UC Riverside, 2015& 2016
- Dissertation Year Program (DYP) Fellowship, UC Riverside, 2014
- Benjamin C. Shen Memorial Award for Outstanding 3rd Year Graduate Students, UC Riverside, 2013
- 1st rank in Comprehensive exam, Physics Department, UC Riverside, 2011
- Dean’s Distinguished Fellowship Award, UC Riverside, 2010
- 2nd rank undergraduate physics student, Sharif University, 2009
- Ranked 205 among 400,000 participants in the Iranian university entrance exam, 2005

REFEREED PUBLICATIONS ([ADS link](#))

First author:

- **Alavi, A.**, Siana, B., Richard, J., Rafelski, M., Jauzac, M., Limousin, M., Freeman, W. R., Scarlata, C., Robertson, B. E., Stark, D., Teplitz, H. I., Desai, V., 2016, ApJ, 832, 56A, “The Evolution of the Faint End of the UV Luminosity Function During the Peak Epoch of Star Formation ($1 < z < 3$)”
- **Alavi, A.**, Siana, B., Richard, J., Stark, D., Scarlata, C., Teplitz, H. I., Freeman, W. R., Dominguez, A., Rafelski, M., Robertson, B. E., Kewley, Lisa., 2014, ApJ, 780, 143A, “Ultra-faint Ultraviolet

Galaxies at $z \sim 2$ behind the Lensing Cluster A1689: The Luminosity Function, Dust Extinction, and Star Formation Rate Density” ([Press Release](#))

Other refereed publications:

- Vasei, k., Siana, B., Shapley, E. A., Quider A. M., **Alavi, A.**, et al., 2016, ApJ, 831, 38V, “The Lyman Continuum Escape Fraction of The Cosmic Horseshoe: A Test of Indirect Estimates”
- Limousin, M., Richard, J., Jullo, E., Jauzac, M., Ebeling, H., Bonamigo, M., **Alavi, A.**, Clement, B., Giocoli, C., Kneib, J. P., Verdugo T., Natarajan, P., Siana, B et al., 2016, A&A, 558A, 99L, “Strong-Lensing Analysis of MACSJ0717.5+3745 from Hubble Frontier Fields Observations: How Well Can the Mass Distribution Be Constrained?”
- Vanzella, E., De Barros, S., Vasei, K., **Alavi, A.**, Giavalisco, M., Siana, B., Grazian, A., Hasinger, G., Suh, H., et al., 2016, “Hubble Imaging of the Ionizing Radiation from A Star-forming Galaxy at $z=3.2$ With $F_{\text{esc}} > 50\%$ ”, 2016, ApJ, 825, 41V
- Siana, B., Shapley, A. E., Kulas, K. R., Nestor, D. B., Steidel, C. C., Teplitz, H. I., **Alavi, A.**, Brown, T. M., Conselice, C. J., Ferguson, H. C., Dickinson, M., Giavalisco, M., Colbert, J. W., Bridge, C. R., Gardner, J. P., de Mello, D. F., 2015, ApJ, 804, 17S, “A Deep Hubble And Keck Search For Definitive Identification Of Lyman Continuum Emitters At $z \sim 3.1$ ”
- Dominguez, A., Siana, B., Brooks, A. M., Christensen, C. R., Bruzual, G., Stark, D. P., **Alavi A.**, 2015, MNRAS, 451, 839D, “Consequences of Bursty Star Formation on Galaxy Observables at High Redshifts”

PAPERS SUBMITTED/IN PREP

- **Alavi, A.**, Siana, B., et al. “The UV Continuum Slopes of Faint Lensed Star-Forming Galaxies: The Effects of Bursty Star Formation History” (*in prep*)

TALKS

- **Flash Talk/UCSC, Lunch Talk/Carnegie**, 2016
Title: “Faint Star-forming Galaxies at the Peak Epoch of Star Formation: An Application of Strong Gravitational Lensing”
- **32nd IAP Meeting:** Paris, France, 2016
Title: “Using Strong Gravitational Lensing to Study Dwarf Galaxies at High Redshifts”
- **American Astronomical Society (AAS) #227:** Kissimmee FL, 2016
Title: “Probing the Peak Epoch of Star Formation ($1 < z < 3$) with Faint Star-forming Galaxies Behind the Lensing Clusters: UV Luminosity Function and Dust Attenuation”
- **South by High Redshift**, Austin TX, 2015
Title: “Understanding the Likely Sources of Reionization by Studying the Faint Lensed Star-forming Galaxies at $1 < z < 3$ ”
- **American Astronomical Society (AAS) #225:** Seattle WA, 2015
Title: “UV Spectral Slope and Dust Attenuation of Faint Star-Forming Galaxies at $1 < z < 3$ Behind the Lensing Cluster A1689”
- **Tea Talk/Caltech, Journal Club/UCLA, Journal Club/UCSD**, 2014
Title: “Probing the Peak Epoch of Star Formation Rate Density ($1 < z < 3$) with Faint Lensed Star-forming Galaxies”
- **Astronomy Seminar:** UC Riverside, 2014
Title: “Ultra-Faint Ultraviolet Galaxies at the Epoch of Peak Star Formation $1 < z < 3$ ”
- **American Astronomical Society (AAS) #223:** Washington DC, 2014
Title: “Ultra-Faint Ultraviolet Galaxies at the Epoch of Peak Star Formation $1 < z < 3$ ”
- [Press Release](#) talk, **American Astronomical Society (AAS) #223:** Washington DC, 2014
- **American Astronomical Society (AAS) #221:** Long Beach, 2013
Title: “The Deepest HST Near-UV Image and the Ultraviolet Luminosity Function at $z=2$ ”

POSTERS

(The author who presented the work is in bold font)

- **Alavi, A.**, Siana, B., et al., “*Deep Ultraviolet Imaging of Frontier Field Clusters: The Evolution of the UV Luminosity Function at $1 < z < 3$* ”, **Keck Science Meeting, UCLA, 2015**
- **Alavi, A.**, Siana, B., et al., “*The UV Continuum Slopes of Faint Lensed Star-Forming Galaxies: The Effects of Bursty SFH*”, **Frontier Fields Workshop, Yale, 2014**

- **Alavi, A., Siana, B., et al., “Ultra-Faint Ultraviolet Galaxies at the Epoch of Peak Star Formation $1 < z < 3$ ”, Southern California Center For Galaxy Evolution Meeting “The Near Field- Deep Field Connection”, Irvine, 2014**
- **Alavi, A., Siana, et al., “The Deepest HST Near-UV Image and The Ultraviolet Luminosity Function at $z=2$ ”, UV Astronomy: HST and Beyond, Kauai, Hawaii, 2012**
- **Alavi, A., Siana, B., et al., “The Deepest HST Near-UV Image and the Ultraviolet Luminosity Function at $z=2$ ”, Southern California Center For Galaxy Evolution Meeting “The Baryon Cycle”, Irvine, 2012**
- **Siana, B., Alavi, A., et al., “The Ultraviolet Frontier: Deep near-UV imaging of the Hubble Frontier Fields”, American Astronomical Society #223, Washington DC, 2014**

TELESCOPE PROPOSALS (accepted)

Hubble Space Telescope

- **Cycle 23, CO-I GO** “The Final UV Frontier: Legacy Near-UV Imaging of the Frontier Fields”, totally 96 orbits, PI: Brian Siana
- **Cycle 22, CO-I AR** “Quantifying Bursty Star Formation and Dust Extinction in Dwarf Galaxies at $0.75 < z < 1.5$ ”, PI: Brian Siana
- **Cycle 21, CO-I GO** “The Ultraviolet Frontier: Completing the Census of Star Formation at Its Peak Epoch”, totally 96 orbits, PI: Brian Siana
- **Cycle 20, CO-I GO** “Ultra-Faint Galaxies at the Peak Epoch of Star Formation”, PI: Brian Siana, totally 26 orbits, PI: Brian Siana
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Ground Based Telescope

- **CO-I ALMA Cycle 4**, PI: Miroslava Dessauges-Zavadsky, totally 26.2 hours
- **CO-I W.M. Keck Telescopes** (3 UC-Keck proposals with PI Brian Siana, totally 8 nights with MOSFIRE and LRIS)

OBSERVING EXPERIENCE

W.M. KECK Observatories

- **LRIS**: 3.5 nights
- **MOSFIRE**: 4.5 nights
- **NIRSPEC**: 3 nights

COMPUTER SKILLS

- **Programming Languages**: IDL, shell scripts, Python, C
- **Data Reduction and Analysis**: PYRAF/IRAF, SExtractor, HST data reduction/alignment DrizzlePac (AstroDrizzle, Tweakreg), Photometric redshift software, SED fitting , Gravitational lensing software Lenstool, Spectroscopic data reduction/analysis

TEACHING

- University Teaching Certificate Program, 2013-2014
- Teaching Assistant, physics lab, UC Riverside, 2010-2011
- Teaching Assistant, “Modern Physics”, Sharif University of Technology, Iran, 2009
- Teaching Assistant, “Physics III”, Sharif University of Technology, Iran, 2009
- Designing\Grading the Physics lab exams, final stage of the 22nd National Physics Olympiad, Iran, 2009

PROFESSIONAL ASSOCIATIONS

- American Astronomical Society, 2012-present
- Women in Math and Science (WIMS), UC Riverside, 2013-present

OUTREACH

- **Volunteer** for astronomy workshops in elementary and middle schools, Riverside, 2016
- **Volunteer** for public astronomy events including the May 2016 Mercury transit, the Sep 2015 total lunar eclipse, the January 2015 triple moon transit on Jupiter, UC Riverside, 2014-presents
- 25th Anniversary of the Hubble Space Telescope, UC Riverside, 2015
Lecture talk: “Hubble Discovers the Small Galaxies Using the Funhouse Mirrors in Nature”

- Telescope observations in “Cosmic Thursday, making astronomy understandable for all”, UC Riverside, 2014-2015
- Riverside Astronomical Society, Riverside, 2014
 - **Invited Talk:** “Using the Hubble Space Telescope and Mother Nature's Telescope (Gravitational Lenses) to Find the Faintest Galaxies in the Universe”
- **Co-organizer** for WISM Shadow Day, UC Riverside, 2014
 - And lecture talk: “A Tour of the Universe”
- **Volunteer** for Riverside Long Night of Arts and Innovations, Riverside, 2014 & 2015
- **Co-organizer** for astronomy section of Inland Empire Science Olympiad (astronomy), UC Riverside, 2013 & 2014
- **Volunteer** for solar observation, UC Riverside Discover Day, 2013, 2014 & 2015
 - Using solar telescope for showing sunspots and solar flares to new admitted students
- **Lecture Talk:** “The Birth and Death of Stars”, Riverside STEM Academy, 2013