Ryan L. Sanders Curriculum Vitae

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EDUCATION

University of California, Los Angeles, Department of Physics & Astronomy
M. S., Astronomy 2014
Advisor: Prof. Alice Shapley

University of Louisville, Department of Physics & Astronomy
Bachelor of Science, Physics with a concentration in Astronomy and Astrophysics 2012
Bachelor of Music, Jazz Performance 2012
Graduated Magna Cum Laude with highest honors
Senior thesis title: "A Study of Baryon Production in Continuum Events at the Babar Detector"
Senior thesis advisor: Prof. David N. Brown

SCIENTIFIC RESEARCH INTERESTS

Galaxy formation and evolution, the cycle of baryons, chemical abundances, evolution of the ISM, physical conditions and structure of the ISM at high redshift

RESEARCH EXPERIENCE

Undergraduate research assistant, University of Louisville 2010-2012
Advisor: Prof. David N. Brown

Undergraduate research assistant, University of Wisconsin, Madison, REU 2012
Advisors: Drs. Eric Hooper and Marsha Wolf

Graduate Student Researcher, University of California, Los Angeles 2012
Advisor: Prof. Rene Ong

Graduate Student Researcher, University of California, Los Angeles 2013-present
Advisor: Prof. Alice Shapley

TEACHING EXPERIENCE

University of California, Los Angeles
Teaching Assistant, ASTR 3 "Introduction to Astronomy", Lab Fall 2012
Winter 2013, Spring 2013

OBSERVING EXPERIENCE

Kitt Peak National Observatory, WIYN 3.5-meter telescope
Instrument: Sparsepak IFU/Bench Spectrograph (optical spectroscopy) 2 nights

Kitt Peak National Observatory, WIYN 0.9-meter telescope
Instrument: SB2K (optical direct imaging) 4 nights

Lick Observatory, Nickel 1-m telescope
Instrument: Direct Imaging Camera (optical direct imaging) 5 nights

W. M. Keck Observatory, Keck I telescope
Instrument: MOSFIRE (multi-object near-infrared spectroscopy) 8 nights

TALKS AND PRESENTATIONS

Invited Talk: "The MOSDEF Survey: New insights into galaxies at z ~ 1-3 from rest-frame optical spectra"
Vth Science with GTC Conference, Puebla, Mexico — December 2015

Conference Talk: "The MOSDEF Survey: Physical conditions in star-forming regions at z ~ 2.3"
Keck Science Meeting, UCLA — September 2015

Poster: "The MOSDEF Survey: Physical conditions of star-forming regions at z ~ 2.3"
International Astronomical Union Symposion 319, Honolulu, HI — August 2015

Poster: "The MOSDEF Survey: Mass, metallicity, and star-formation rate at z ~ 2.3"
Keck Science Meeting, California Institute of Technology — October 2014

Poster: "The star formation history of a post-starburst galaxy from SDSS Data Release 7"
219th Meeting of the American Astronomical Society, Austin, TX — January 2012

AWARDS & HONORS

Senior Bullitt Scholar in Astronomy, University of Louisville — 2010
Outstanding Teaching Award, University of California, Los Angeles — 2013
Teaching Assistant, ASTR 3 "Nature of the Universe", Lab

OUTREACH & PUBLIC EDUCATION

UCLA Planetarium and Telescope Coordinator — 2013-present
The UCLA Planetarium is run on a volunteer basis by graduate students and serves over 5,000 attendees per year. Coordinator responsibilities include scheduling, designing, and presenting planetarium shows, coordinating student volunteers, maintaining and servicing public outreach telescopes, maintaining the star projector and control system, and keeping the planetarium website up to date.

Astronomy Live! Summer Observing Workshop
Co-founder, lecturer, research mentor — 2014
Director — 2015
The Astronomy Live! Summer Observing Workshop is an 8-week summer program for high school juniors and seniors that provides a hands-on introduction to observational astronomy. The goal of this program is to encourage students to pursue science education in college, specifically targeting underprivileged students. Students attend lectures on topics in physics and astronomy, basic computing, and data reduction techniques. Each student completes an individual research project in which they reduce and analyze data on an astronomical object culminating in an oral presentation of their results. Workshop attendees also gain hands-on experience with UCLA outreach telescopes and remotely observe using a research-grade telescope and CCD at Lick Observatory.

Astronomy Live! outreach program at UCLA — 2013-present
Participated in outreach events using telescopes and demonstrations for the general public and local schools, including leading booths and public observing at the Exploring Your Universe event, a day-long science fair at UCLA that hosts approximately 6,000 people.

SERVICE

Referee, The Astrophysical Journal — 2015-present

PUBLICATIONS

7. "The MOSDEF Survey: Electron Density and Ionization Parameter at z ~ 2.3"
Sanders, R. L., Shapley, A. E., Kriek, M., Reddy, N. A., Freeman, W. R., Coil, A. L., Siana, B., Mobasher, B., Shivaei, I., Price, S. H., and de Groot, L., 2016, ApJ, 816, 23

6. "The MOSDEF Survey: Dissecting the Star Formation Rate versus Stellar Mass Relation Using Hα and Hβ Emission Lines at z ~ 2"
Shivaei, I., Reddy, N. A., Shapley, A. E., Kriek, M., Siana, B., Mobasher, B., Coil, A. L., Freeman, W. R., **Sanders, R. L.**, Price, S. H., de Groot, L., and Azadi, M., 2015, ApJ, 815, 98

5. "The MOSDEF Survey: Dynamical and Baryonic Masses and Kinematic Structures of Star-Forming Galaxies at $1.4 \leq z \leq 2.6$"
Price, S. H., Kriek, M., Shapley, A. E., Reddy, N. A., Freeman, W. R., Coil, A. L., de Groot, L., Shivaei, I., Siana, B., Azadi, M., Barro, G., Mobasher, B., **Sanders, R. L.**, and Zick, T., 2015, arXiv:1511.03272

4. "The MOSFIRE Deep Evolution Field (MOSDEF) Survey: Rest-frame Optical Spectroscopy for ~1500 H-selected Galaxies at $1.37 < z < 3.8$"
Kriek, M., Shapley, A. E., Reddy, N. A., Siana, B., Coil, A. L., Mobasher, B., Freeman, W. R., de Groot, L., Price, S. H., **Sanders, R. L.**, Shivaei, I., Brammer, G. B., Momcheva, I. G., Skelton, R. E., van Dokkum, P. G., Whitaker, K. E., Aird, J., Azadi, M., Kassis, M., Bullock, J. S., Conroy, C., Davé, R., Kereš, D., and Krumholz, M., 2015, ApJS, 218, 15

3. "The MOSDEF Survey: Measurements of Balmer Decrements and the Dust Attenuation Curve at Redshifts z ~ 1.4-2.6"
Reddy, N.A., Kriek, M., Shapley, A. E., Freeman, W. R., Siana, B., Coil, A. L., Mobasher, B., Price, S. H., **Sanders, R. L.**, and Shivaei, I., 2015, ApJ, 806, 259

2. "The MOSDEF Survey: Excitation Properties of z ~ 2.3 Star-forming Galaxies"
Shapley, A. E., Reddy, N. A., Kriek, M., Freeman, W. R., **Sanders, R. L.**, Siana, B., Coil, A. L., Mobasher, B., Shivaei, I., Price, S. H., and de Groot, L., 2015, ApJ, 801, 88

1. "The MOSDEF Survey: Mass, Metallicity, and Star-formation Rate at z ~ 2.3"
Sanders, R. L., Shapley, A. E., Kriek, M., Reddy, N. A., Freeman, W. R., Coil, A. L., Siana, B., Mobasher, B., Shivaei, I., Price, S. H., and de Groot, L., 2015, ApJ, 799, 138

PROFESSIONAL REFERENCES

Alice E. Shapley, University of California, Los Angeles; aes@astro.ucla.edu
Eric Hooper, University of Wisconsin, Madison; ehooper@astro.wisc.edu
Marsha Wolf, University of Wisconsin, Madison; mwolf@astro.wisc.edu