

## Sedona Price

Max Planck Institute for Extraterrestrial Physics, Room X5 1.3.41  
Garching, Germany

sedona@mpe.mpg.de  
<http://mpe.mpg.de/~sedona>

### Research Interests

Galaxy evolution, high redshift galaxies, galaxy structure, gas and stellar kinematics

### Education

2017 **Ph.D. Astrophysics**, *University of California, Berkeley*  
*Dissertation:* Galaxies in the Young Universe: Structures, Masses, and Composition  
of Star-Forming Galaxies at  $z \sim 1.5 - 3$   
*Advisor:* Mariska Kriek

2013 **M.A. Astrophysics**, *University of California, Berkeley*

2011 **B.S. Physics**, *with honors, California Institute of Technology*

### Research Positions

2017-present Postdoctoral Scholar, Max-Planck-Institut für extraterrestrische Physik, Garching, Germany

2011-2017 Graduate Student, UC Berkeley

2008-2010 Summer Undergraduate Research Fellow, Undergraduate Researcher, Caltech

### Fellowships & Awards

2012-2015 NSF Graduate Research Fellowship, UC Berkeley

2014 Outstanding Graduate Student Instructor Award, UC Berkeley

2009 Margie Lauritsen Leighton Prize, Caltech

### Observing Experience

ESO, VLT, SINFONI (3 nights)

W. M. Keck Observatory, Keck I 10 m telescope, MOSFIRE (10.5 nights), OSIRIS (3.5 nights), LRIS (0.5 night)

### Teaching

2013 Astro C10, *Co-head GSI, Introductory course for non-majors*, UC Berkeley

2012 Astro 7b, *Introductory course for majors*, UC Berkeley

2011 Astro C10, *Introductory course for non-majors*, UC Berkeley

2010, 2011 Physics 6, *Sophomore physics major lab*, Caltech

### Service

—— Referee, *The Astrophysical Journal (ApJ)*

2013-2016 Mentor Master, *co-head of grad student mentoring program*, UC Berkeley

2014-2015 Co-supervisor, *undergraduate student Meng Luo*, UC Berkeley

2013-2015 Mentor, *mentoring junior graduate student*, UC Berkeley

2012-2015 Graduate Student Representative, *Astronomy Department*, UC Berkeley

### Outreach

2017 April Solar Activities, *Marin Elementary STEAM day*, UC Berkeley

2012-2017 Annual Cal Day, *Astronomy Department exposition*, UC Berkeley

2014-2017 Mentoring Group, *Society of Women in Physical Sciences*, UC Berkeley

2016 May Solar Viewing, *Ecology Center Festival*, UC Berkeley

2011-2015 Annual Bay Area Science Festival, *Science@Cal*, UC Berkeley

2013-2015 Annual Astronomy Demo Day, *Meher School 5th grade class*, UC Berkeley

2012-2014 Mentor, *Berkeley Compass Project*, UC Berkeley

2012 Mar Expanding Your Horizons workshop, *for middle school girls*, UC Berkeley

## Presentations

### Conferences:

2019 Sep	Invited Talk, KIAA, <i>Second Forum on Gas in Galaxies</i> , Beijing, China
2019 Mar	Invited Talk, Universität Heidelberg, <i>MOSAIC 2019 Science meeting</i> , Heidelberg, Germany
2018 Dec	Talk, ESO Workshop, <i>KMOS@5</i> , Garching, Germany
2018 Aug	Talk, Santa Cruz Galaxy Workshop, Santa Cruz, CA
2017 Jun	Talk, Ringberg Castle, <i>Advances in Galaxy Evolution</i> , Germany
2016 Sep	Talk, Keck Science Meeting, Pasadena, CA
2016 Aug	Talk, Santa Cruz Galaxy Workshop, Santa Cruz, CA
2016 Jul	Talk, Munich Joint Conference, <i>Discs in Galaxies</i> , Garching, Germany
2016 Apr	Poster, STScI Spring Symposium, <i>What Shapes Galaxies?</i> , Baltimore, MD
2015 Aug	Talk, IAU Symposium 319, <i>Galaxies at High Redshift and Their Evolution over Cosmic Time</i> , Honolulu, HI
2013 May	Talk, Lorenz Center Workshop, <i>Galaxy formation from <math>z=5</math> to <math>z=0</math></i> , Leiden, the Netherlands

### Seminars:

2017 Jun	Invited Cosmology seminar, UC Davis, CA
2016 Nov	Tea talk, Caltech, Pasadena, CA
2016 Nov	Lunch seminar, Carnegie Observatories, Pasadena, CA
2016 Nov	Invited seminar, CfA/Harvard, Cambridge, MA
2016 Nov	Invited lunch talk, MIT, Cambridge, MA
2015 Nov	Lunch talk, UC Berkeley, CA
2013 Oct	Lunch talk, UC Berkeley, CA

## First Author Publications

1. **Price, S. H.**, Kriek, M., Barro, G., et al., “*The MOSDEF Survey: Kinematic and Structural Evolution of Star-Forming Galaxies at  $1.4 \leq z \leq 3.8$* ,” 2019, [arXiv:1902.09554](#)
2. **Price, S. H.**, Kriek, M., Feldmann, R., et al., “*Testing the Recovery of Intrinsic Galaxy Sizes and Masses of  $z \sim 2$  Massive Galaxies Using Cosmological Simulations*,” 2017, [ApJL](#), **844**, L6
3. **Price, S. H.**, Kriek, M., Shapley, A. E., et al., “*The MOSDEF Survey: Dynamical and Baryonic Masses and Kinematic Structures of Star-Forming Galaxies at  $1.4 \leq z \leq 2.6$* ,” 2016, [ApJ](#), **819**, 80
4. **Price, S. H.**, Kriek, M., Brammer, G. B., et al., “*Direct Measurements of Dust Attenuation in  $z \sim 1.5$  Star-Forming Galaxies from 3D-HST: Implications for Dust Geometry and Star Formation Rates*,” 2014, [ApJ](#), **788**, 86

## Contributing Author Publications

1. Shimizu, T. T., Davies, R. I., Lutz, D., et al., including **SHP**, “*The multiphase gas structure and kinematics in the circumnuclear region of NGC 5728*,” 2019, [arXiv:1907.03801](#)
2. Suess, K. A., Kriek, M., **Price, S. H.**, & Barro, G., “*Half-mass radii of quiescent and star-forming galaxies evolve slowly from  $0 < z < 2.5$ : implications for galaxy assembly histories*,” 2019, [arXiv:1910.06984](#)
3. Wisnioski, E., Förster Schreiber, N. M., Fossati, M., et al., including **SHP**, “*The KMOS<sup>3D</sup> Survey: data release and final survey paper*,” 2019, [arXiv:1909.11096](#)
4. Fornasini, F. M., Kriek, M., Sanders, R. L., et al., including **SHP**, “*The MOSDEF Survey: The Metallicity Dependence of X-ray Binary Populations at  $z \sim 2$* ,” 2019, [arXiv:1909.08635](#)
5. Shapley, A. E., Sanders, R. L., Shao, P., et al., including **SHP**, “*The MOSDEF Survey: Sulfur Emission-line Ratios Provide New Insights into Evolving Interstellar Medium Conditions at High Redshift*,” 2019, [ApJL](#), **881**, L35
6. Kriek, M., **Price, S. H.**, Conroy, C., et al., “*Stellar Metallicities and Elemental Abundance Ratios of  $z \sim 1.4$  Massive Quiescent Galaxies*,” 2019, [ApJL](#), **880**, L31

7. Übler, H., Genzel, R., Wisnioski, E., et al., including **SHP**, “*The Evolution and Origin of Ionized Gas Velocity Dispersion from  $z \sim 2.6$  to  $z \sim 0.6$  with KMOS<sup>3D</sup>*,” 2019, [ApJ, 880, 48](#)
8. Sanders, R. L., Shapley, A. E., Reddy, N. A., et al., including **SHP**, “*The MOSDEF Survey: Direct-Method Metallicities and ISM Conditions at  $z \sim 1.5 - 3.5$* ,” 2019, [arXiv:1907.00013](#)
9. Suess, K. A., Kriek, M., **Price, S. H.**, & Barro, G., “*Half-mass Radii for  $\sim 7000$  Galaxies at  $1.0 \leq z \leq 2.5$ : Most of the Evolution in the Mass-Size Relation Is Due to Color Gradients*,” 2019, [ApJ, 877, 103](#)
10. Leung, G. C. K., Coil, A. L., Aird, J., et al., including **SHP**, “*The MOSDEF survey: a census of AGN-driven ionized outflows at  $z = 1.4-3.8$* ,” 2019, [arXiv:1905.13338](#)
11. Förster Schreiber, N. M., Übler, H., Davies, R. L., et al., including **SHP**, “*The KMOS<sup>3D</sup> Survey: Demographics and Properties of Galactic Outflows at  $z = 0.6 - 2.7$* ,” 2019, [ApJ, 875, 21](#)
12. Wilson, T. J., Shapley, A. E., Sanders, R. L., et al., including **SHP**, “*The MOSDEF Survey: No Significant Enhancement in Star Formation or Deficit in Metallicity in Merging Galaxy Pairs at  $1.5 \lesssim z \lesssim 3.5$* ,” 2019, [ApJ, 874, 18](#)
13. Davies, R. L., Förster Schreiber, N. M., Übler, H., et al., including **SHP**, “*Kiloparsec Scale Properties of Star-Formation Driven Outflows at  $z \sim 2.3$  in the SINS/zC-SINF AO Survey*,” 2019, [ApJ, 873, 122](#)
14. Freeman, W. R., Siana, B., Kriek, M., et al., including **SHP**, “*The MOSDEF Survey: Broad Emission Lines at  $z = 1.4-3.8$* ,” 2019, [ApJ, 873, 102](#)
15. Nelson, E. J., Tadaki, K.-I., Tacconi, L. J., et al., including **SHP**, “*Millimeter Mapping at  $z \sim 1$ : Dust-obscured Bulge Building and Disk Growth*,” 2019, [ApJ, 870, 130](#)
16. Reddy, N. A., Shapley, A. E., Sanders, R. L., et al., including **SHP**, “*The MOSDEF Survey: Significant Evolution in the Rest-frame Optical Emission Line Equivalent Widths of Star-forming Galaxies at  $z = 1.4-3.8$* ,” 2018, [ApJ, 869, 92](#)
17. Zick, T. O., Kriek, M., Shapley, A. E., et al., including **SHP**, “*The MOSDEF Survey: Stellar Continuum Spectra and Star Formation Histories of Active, Transitional, and Quiescent Galaxies at  $1.4 < z < 2.6$* ,” 2018, [ApJL, 867, L16](#)
18. Azadi, M., Coil, A., Aird, J., et al., including **SHP**, “*The MOSDEF Survey: The Nature of Mid-infrared Excess Galaxies and a Comparison of IR and UV Star Formation Tracers at  $z \sim 2$* ,” 2018, [ApJ, 866, 63](#)
19. Sanders, R. L., Shapley, A. E., Kriek, M., et al., including **SHP**, “*The MOSDEF Survey: A Stellar Mass-SFR-Metallicity Relation Exists at  $z \sim 2.3$* ,” 2018, [ApJ, 858, 99](#)
20. Shivaeei, I., Reddy, N. A., Siana, B., et al., including **SHP**, “*The MOSDEF Survey: Direct Observational Constraints on the Ionizing Photon Production Efficiency,  $\xi_{\text{ion}}$ , at  $z \sim 2$* ,” 2018, [ApJ, 855, 42](#)
21. Übler, H., Genzel, R., Tacconi, L. J., et al., including **SHP**, “*Ionized and Molecular Gas Kinematics in a  $z = 1.4$  Star-forming Galaxy*,” 2018, [ApJL, 854, L24](#)
22. Barro, G., Kriek, M., Pérez-González, P. G., et al., including **SHP**, “*Spatially Resolved Kinematics in the Central 1 kpc of a Compact Star-forming Galaxy at  $z \sim 2.3$  from ALMA CO Observations*,” 2017, [ApJL, 851, L40](#)
23. Leung, G. C. K., Coil, A. L., Azadi, M., et al., including **SHP**, “*The MOSDEF Survey: The Prevalence and Properties of Galaxy-wide AGN-driven Outflows at  $z \sim 2$* ,” 2017, [ApJ, 849, 48](#)
24. Shapley, A. E., Sanders, R. L., Reddy, N. A., et al., including **SHP**, “*The MOSDEF Survey: First Measurement of Nebular Oxygen Abundance at  $z > 4$* ,” 2017, [ApJL, 846, L30](#)
25. Shivaeei, I., Reddy, N. A., Shapley, A. E., et al., including **SHP**, “*The MOSDEF Survey: Metallicity dependence of the PAH emission at High Redshift and Implications for 24 micron-inferred IR luminosities and star formation rates at  $z \sim 2$* ,” 2017, [ApJ, 837, 157](#)
26. Azadi, M., Coil, A. L., Aird, J., et al., including **SHP**, “*The MOSDEF survey: AGN multi-wavelength identification, selection biases and host galaxy properties*,” 2017, [ApJ, 835, 27](#)

27. Momcheva, I. G., Brammer, G. B., van Dokkum, P. G., et al., including **SHP**, “*The 3D-HST Survey: Hubble Space Telescope WFC3/G141 Grism Spectra, Redshifts, and Emission Line Measurements for ~100,000 Galaxies*,” 2016, [ApJS, 225, 27](#)
28. Sanders, R. L., Shapley, A. E., Kriek, M., et al., including **SHP**, “*The MOSDEF Survey: Detection of [OIII] $\lambda$ 4363 and the Direct-method Oxygen Abundance of a Star-forming Galaxy at  $z = 3.08$* ,” 2016, [ApJL, 825, L23](#)
29. Shivaiei, I., Kriek, M., Reddy, N. A., et al., including **SHP**, “*The MOSDEF Survey: The Strong Agreement between H $\alpha$  and UV-to-FIR Star Formation Rates for  $z \sim 2$  Star-forming Galaxies*,” 2016, [ApJL, 820, L23](#)
30. Sanders, R. L., Shapley, A. E., Kriek, M., et al., including **SHP**, “*The MOSDEF Survey: Electron Density and Ionization Parameter at  $z \sim 2.3$* ,” 2016, [ApJ, 816, 23](#)
31. Shivaiei, I., Reddy, N. A., Shapley, A. E., et al., including **SHP**, “*The MOSDEF Survey: Dissecting the Star Formation Rate versus Stellar Mass Relation Using H $\alpha$  and H $\beta$  Emission Lines at  $z \sim 2$* ,” 2015, [ApJ, 815, 98](#)
32. Kriek, M., Shapley, A. E., Reddy, N. A., et al., including **SHP**, “*The MOSFIRE Deep Evolution Field (MOSDEF) Survey: Rest-frame Optical Spectroscopy for ~1500 H-selected Galaxies at  $1.37 < z < 3.8$* ,” 2015, [ApJS, 218, 15](#)
33. Reddy, N. A., Kriek, M., Shapley, A. E., et al., including **SHP**, “*The MOSDEF Survey: Measurements of Balmer Decrements and the Dust Attenuation Curve at Redshifts  $z \sim 1.4$ -2.6*,” 2015, [ApJ, 806, 259](#)
34. Shapley, A. E., Reddy, N. A., Kriek, M., et al., including **SHP**, “*The MOSDEF Survey: Excitation Properties of  $z \sim 2.3$  Star-forming Galaxies*,” 2015, [ApJ, 801, 88](#)
35. Coil, A. L., Aird, J., Reddy, N., et al., including **SHP**, “*The MOSDEF Survey: Optical Active Galactic Nucleus Diagnostics at  $z \sim 2.3$* ,” 2015, [ApJ, 801, 35](#)
36. Sanders, R. L., Shapley, A. E., Kriek, M., et al., including **SHP**, “*The MOSDEF Survey: Mass, Metallicity, and Star-formation Rate at  $z \sim 2.3$* ,” 2015, [ApJ, 799, 138](#)
37. Skelton, R. E., Whitaker, K. E., Momcheva, I. G., et al., including **SHP**, “*3D-HST WFC3-selected Photometric Catalogs in the Five CANDELS/3D-HST Fields: Photometry, Photometric Redshifts, and Stellar Masses*,” 2014, [ApJS, 214, 24](#)
38. Bergé, J., **Price, S.**, Amara, A., & Rhodes, J., “*On point spread function modelling: towards optimal interpolation*,” 2012, [MNRAS, 419, 2356](#)

## Grants

2016	AAS International Travel Grant, Munich Joint Conference
2015	AAS International Travel Grant, IAU Symposium 319
2012-2015	NSF Graduate Research Fellowship, UC Berkeley