

ANNA LORRAINE ROSEN

anna.rosen@cfa.harvard.edu \diamond www.anna-rosen.com

Institute for Theory and Computation, Harvard-Smithsonian Center for Astrophysics, Cambridge MA 02138

EDUCATION

Ph.D., Astronomy & Astrophysics, University of California, Santa Cruz 2017
Advisors: Mark Krumholz, Enrico Ramirez-Ruiz
M.S., Astronomy & Astrophysics, University of California, Santa Cruz 2012
B.A., Physics & Astrophysics, University of California, Berkeley 2009
Cumulative GPA: 3.81/4.0 , Major GPA: 3.82/4.0, Honors: Fall 2007-2009

AWARDS AND RESEARCH POSITIONS

Institute for Theory and Computation Post-doctoral Fellowship, Harvard University 2020-2022
NASA Einstein Post-doctoral Fellowship, Harvard University 2017-2020
NASA Hubble Post-doctoral Fellowship (declined) 2017
Rodger Doxsey Dissertation Prize (American Astronomical Society) 2017
ARCS Foundation Fellowship 2016
AAUW American Dissertation Year Fellowship 2016
Excellence in Mentoring Award (UC Santa Cruz Astronomy & Astrophysics Department) 2015
National Science Foundation Graduate Research Fellowship Program 2011
Daniel Edward Wark Memorial Scholarship (UC Berkeley Astrophysics Department) 2009
NASA Motivating Undergraduates in Science and Technology Scholarship 2007
Alexander Frolich Award for excellence of achievement in Physics 2007
JPL Undergraduate Scholars Award for excellence of achievement in Physics 2007
Thomas McCutcheon Award for excellence of achievement in Mathematics 2006

SUCCESSFUL PROPOSALS

Total of grants obtained as Principal Investigator: \$174,825

1. PI, Chandra Theory, Cycle 16 2014
Title: *To Leak or Not to Leak: Where are the Missing X-ray Photons from Massive Star Clusters?*
2. PI, Hubble Archival, Cycle 21 2013
Title: *Simulating the Birth of Massive Star Clusters: Is Destruction Inevitable?*

TECHNICAL SKILLS

Computer Languages C++, Fortran, IDL, Python, R, MPI
Simulation Codes ORION
Analysis Codes yt, RADMC-3D

ADVISING EXPERIENCE

Monica Gallegos-Garcia (former undergraduate at UCSC), 2018-Present*
Turbulent Driving by B-stars in Star Clusters
Courtney Bishop (undergraduate at College of William & Mary), SAO NSF REU program 2018
Comparing Molecular Line Tracers in Outflows Generated by Massive Star Formation
Hope Chen (former graduate student at Harvard), 2018-Present*
Effects of an Embedded B-Star Wind in Ophiuchus
Evan Carter (former undergraduate at UCSC) 2014-Present*
Synthetic Observations of Low-Mass Star Formation: Implications for Current SED-Fitting Methods

* Denotes students whose project led to or will soon lead to a refereed publication

SERVICE EXPERIENCE

Co-organizer for the Equity & Inclusion Journal Club (EIJC), Harvard-Smithsonian CfA, 2018-Present	
Proposal Reviewer for the Czech Science Foundation	2018
ITC Post-doctoral Fellowship Committee Member, Harvard-Smithsonian CfA	2017
SOC/LOC Member for Harvard-Heidelberg Star Formation meeting, Harvard-Smithsonian CfA	2017
Research in Astronomy & Astrophysics (RAA) Referee	2017
Organizer, Space Telescope Proposal Writing Workshop, UCSC Astronomy & Astrophysics Department	2015
Undergraduate Student Mentor, UCSC Women in Physics Group	2013-Present
Member of the LAMAT Research Internship Admissions Committee	2013
Graduate Student Mentor, UCSC Astronomy & Astrophysics Department	2012-2013, 2016-Present
Astronomy Graduate Student Representative, UCSC Graduate Student Association	2012-2013
Organizer, Applying to the NSF GRFP Workshop, UCSC Astronomy & Astrophysics Department	2012-2016

TEACHING EXPERIENCE

Co-Instructor, Programming Bootcamp, Lamat Program, UCSC	2015
Activity Designer/Facilitator, Institute for Science & Engineering Educators Professional Development Program, Hartnell College	2011
Teaching Assistant, "Astronomy 2: Overview of the Universe", UCSC	2010
Grader, "Astronomy C161: Relativistic Astrophysics & Cosmology", UC Berkeley	2010
Undergraduate Student Instructor, "Astronomy C10: Introduction to Astronomy", UC Berkeley	2009

REFEREED JOURNAL PUBLICATIONS (4 1ST-AUTHORED PUBLICATIONS)

1. "unyt: Handle, manipulate, and convert data with units in Python"
Goldbaum, N.J., ZuHone J.A., Turk, M.J., Kowalik, K., **Rosen, A.L.**, 2018, *subm. to Journal of Open Source Software*, [NASA ADS](#)
2. "Hybrid Adaptive Ray-Moment Method (HARM²): A Highly Parallel Method for Radiation Hydrodynamics on Adaptive Grids"
Rosen, A. L., Krumholz, M. R., Oishi, J.S., Lee, A.T., & Klein, R.I., 2017, *Journal of Computational Physics*, 330, 924; [NASA ADS](#)
3. "An Unstable Truth: How Massive Stars get their Mass"
Rosen, A. L., Krumholz, M. R., McKee, C.F., & Klein, R.I., 2016, *Monthly Notices of the Royal Astronomical Society*, 463, 2553; [NASA ADS](#)
4. "Gone with the Wind: Where is the Missing Stellar Wind Energy from Massive Star Clusters?"
Rosen, A. L., Lopez, L.A., Krumholz, M. R., & Ramirez-Ruiz, E.; 2014, *Monthly Notices of the Royal Astronomical Society*, 442, 2701; [NASA ADS](#)
5. "What Sets the Initial Rotation Rates of Massive Stars?"
Rosen, A. L., Krumholz, M. R., & Ramirez-Ruiz, E.; 2012, *Astrophysical Journal*, 748, 97; [NASA ADS](#)

SCIENTIFIC PRESENTATIONS (18 INVITED)

1. Invited Colloquium, University of Florida Astronomy Department; Gainesville, FL 2018
2. Talk, NASA Einstein Symposium, Harvard-Smithsonian CfA; Cambridge, MA 2018
3. Invited Talk, Stars Birth & Death: GMT Community Science Meeting; Honolulu, Hawaii 2018
4. Talk, The Wonders of Star Formation; Edinburgh, UK 2018
5. Talk, Tracing the Flow: Galactic Environments and the Formation of Massive Stars; Lake Windermere, UK 2018

6. Talk, Olympian Symposium 2018: Gas and stars from milli- to mega- parsecs; Paralia Katerini, Greece *2018*
7. Talk, SESTAS at MPA, Max Planck Institute for Astronomy (MPA), Garching, Germany *2018*
8. Talk, Star and Planet Formation Seminar; European Southern Observatory (ESO), Garching, Germany *2018*
9. Talk, Early Phase of Star Formation; Ringberg, Germany *2018*
10. Talk, ITC Luncheon, Harvard-Smithsonian CfA; Cambridge, MA *2018*
11. Invited Talk, Astrophysical Shocks Meeting, AIP Potsdam; Potsdam, Germany *2018*
12. Invited Talk, High Energy Seminar, Harvard-Smithsonian CfA; Cambridge, MA *2017*
13. Talk, NASA Einstein Symposium, Harvard-Smithsonian CfA; Cambridge, MA *2017*
14. Invited Talk, ITC Luncheon, Harvard-Smithsonian CfA; Cambridge, MA *2017*
15. Invited Talk, Astronomy Seminar, University of Massachusetts Lowell; Lowell, MA *2017*
16. Invited Talk, Astronomy Seminar, University of Connecticut; Storrs, CT *2017*
17. Invited Talk, Astronomy Colloquium, University of Massachusetts Amherst; Amherst, MA *2017*
18. Talk, Multi-Scale Star Formation; Morelia, Michoacan, Mexico *2017*
19. Dissertation Talk, 229th AAS Meeting; Grapevine, TX *2017*
20. Talk, Tuesday Seminar, University of Chicago; Chicago, IL *2016*
21. Talk, CITA Seminar, Canadian Institute for Computational Astrophysics; Toronto, Canada *2016*
22. Talk, Galaxy Journal Club, Space Telescope Science Institute; Baltimore, MD *2016*
23. Talk, Thunch Seminar, Princeton; Princeton, NJ *2016*
24. Invited Talk, ITC Seminar, Harvard-Smithsonian CfA; Cambridge, MA *2016*
25. Talk, MIT Astrophysics Brown Bag Lunch Series, MIT Kavli Institute; Cambridge, MA *2016*
26. Invited Talk, CCAPP Seminar, Ohio State University; Columbus, OH *2016*
27. Talk, Columbia Astronomy Seminar, Columbia; Manhattan, NY *2016*
28. Talk, Galaxy Lunch Seminar, Yale; New Haven, CT *2016*
29. Invited Talk, TAPIR Seminar, Caltech; Pasadena, CA *2016*
30. Talk, Thursday Theory Seminar, Carnegie Observatories; Pasadena, CA *2016*
31. Talk, Star Formation in Different Environments; Quy Nhon, Vietnam *2016*
32. Invited Talk, Cosmology Seminar, KIPAC/Stanford, Palo Alto, Ca *2016*
33. Invited Talk, Cosmoclub, UCSC; Santa Cruz, CA *2016*
34. Talk, From Stars to Massive Stars; Gainesville, Florida *2016*
35. Invited Talk, Computational Astrophysics Meeting; ANU RSAA, Canberra, Australia *2016*
36. Talk, XXIXth IAU General Assembly, IAUS 316: Formation, Evolution, and Destruction of Massive Star Clusters; Honolulu, Hawaii *2015*
37. Talk, Soul of High Mass Star Formation; Puerto Varas, Chile *2015*
38. Invited Talk, Star & Planet Formation Day; Gainesville, Florida *2015*
39. Invited Talk, Florida ASTROWIN Workshop: Star Formation Feedback; Gainesville, Florida *2015*
40. Invited Talk, Formation of Massive Star Clusters Workshop; Prague, Czech Republic *2014*
41. Invited Talk, Chemical Evolution Workshop; DARK Copenhagen, Denmark *2014*
42. Talk, Summer FLASH, UCSC, Santa Cruz, CA *2014*
43. Talk, Olympian Symposium on Star Formation; Paralia Katerinis, Mount Olympus, Greece *2014*
44. Invited Talk, Geophysical & Astrophysical Fluid Dynamics Seminar; UCSC, Santa Cruz, CA *2012*
45. Talk, XXVIIIth IAU General Assembly Meeting, JD 2: Very Massive Stars in the Local Universe; Beijing, China *2012*
46. Talk, Friday Lunch Astrophysics Seminar Hour (FLASH); UCSC, Santa Cruz, CA *2012*
47. Poster, Four Decades of Research on Massive Stars: A Scientific Meeting in Honour of Anthony F.J. Moffatt; Montreal, Canada *2011*
48. Poster, 215th AAS Meeting; Washington, DC *2010*

PUBLIC OUTREACH

Speaker, “How to Make Stars on a (super)Computer,” Women in Science and Engineering (WiSE) Science on Tap Event	2017
Speaker, “An Unstable Truth: How Massive Stars get their Mass,” AAUW Monterey Peninsula Chapter Meeting	2017
Speaker, “How to Write an Effective Abstract,” Lamat REU Program, UCSC	2016
Organizer and Panelist, “Astronomy Grad Student and Post-doc Panel,” Lamat REU Program, UCSC	2016
Speaker, “Then and Now: From North Hills Prep to a Ph.D. in Astrophysics,” North Hills Prep School	2016
Astronomy Outreach Activity, Expanding Your Horizons Workshop for Young Girls, Hartnell College	2015
Speaker, “How to Make Stars on a (super)Computer,” UCSC, Monterey Astronomy Club, Scotts Valley High School	2015
Speaker, “Computational Astrophysics”, Stanford Pre-collegiate Summer Courses, Stanford	2015
Speaker, “Star Formation and Stellar Feedback”, Lamat Research Experience for Undergraduates (REU) Program, UCSC	2015, 2016
Organizer, Diverse Topics in Astronomy Lecture Series, Lamat REU Program, UCSC	2015, 2016
Speaker, “Reading Scientific Literature,” Lamat REU Program, UCSC	2015
Graduate Student Panelist, Advancement Via Individual Determination (AVID) Program, Soquel High School	2015
Women in Science & Engineering (WiSE) Astronomy Education Outreach Presentation, Seaside High School	2014
Panelist, STEM Diversity Professional Development Workshop Series, UCSC	2014
Author, www.astrobites.org	2011-2013
WiSE Education Outreach Presentation, Santa Cruz High School	2011
Panelist, Girls Scouts “Girls Go Tech” Event, NASA Ames, Moffatt Field, CA	2011