

Curriculum Vitae

JILL PALMER NAIMAN

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Fields of Scientific Research: Hydrodynamics of gas retention and accumulation in compact systems such as star clusters and dwarf galaxies; chemical evolution in galaxies within large scale cosmological simulations.

Fields of Visualization Research: Development of tools to streamline visualization of complex datasets within industry standard special effects software; development of open source, virtual reality teaching tools

Education

2014-present	NSF and ITC Postdoctoral Fellow, Harvard-Smithsonian CfA
2007-2014	Astronomy & Astrophysics PhD Student, University of CA, Santa Cruz
2006-2007	Physics Masters Student, University of CA, Santa Cruz
2002-2005	B.S. Astrophysics, University of CA, Los Angeles, Mathematics minor, Summa Cum Laude
2000-2002	A.A. Individual Studies, Foothill Junior College, Los Altos, CA

Honors and Awards

2014	Chancellor's Achievement Award For Diversity, UCSC
2013	ARCS Scholar
2012	Presidents Dissertation Year Fellowship
2012	Departmental Mentoring Award
2006	Regent's Fellowship (1 quarter)
2005	Charles Geoffrey Hilton Award for Academic Excellence, UCLA
2005	Highest Departmental Honors, UCLA

Professional History

2007-2014	Graduate Student Researcher, UCSC Dept of Astronomy & Astrophysics Advisors: Enrico Ramirez-Ruiz & Doug N. Lin
2006-2007	Graduate Student Researcher, UCSC Dept of Physics Advisor: David Smith
2005-2006	Research Assistant, UCLA Dept of Astronomy & Astrophysics Advisor: Andrea Ghez

Scientific Programming Experience

- FLASH – parallel adaptive mesh refinement hydrodynamics code (6+ years)
- Gadget-2 – parallel smooth particle hydrodynamics code (2+ years)
- AREPO – parallel moving mesh hydrodynamics code (2+ year, IllustrisTNG developer)
- Reduced: data from Keck NIRC2 and NIRSPEC, VLA, LIGO, RHESSI
- Analyzed: NIR spectra & images, Gamma-ray spectra & Images, radio images

Visualization Programming Experience

- AstroBlend – a Blender package for scientific visualization (founder, main developer): astroblend.com
- Ytini – data processing tools for scientific visualization in Houdini (founder, co-developer): ytini.com
- AVRiot – physically based coding with Arduinos, projects & education (founder, main dev): avriot.com
- yt – widely used astronomy package for data visualization and analysis (developer): yt-project.org

Programming Languages/Packages

- expert: Python, IDL, C, Fortran
- comfortable: C++, java, html
- specific packages: yt, OPENMPI, OpenGL/WebGL (beginner)

Selected Invited Talks

1. “*R-process elements in the IllustrisTNG Simulations*,” Nebular Emission Modeling Workshop, Cairns, AU, May 21, 2017
2. “*The IllustrisTNG Simulations: Elemental Evolution in Cosmological Simulations*,” University of Wisconsin Madison Colloquium, May 4, 2017
3. “*Visualization Techniques in Astronomy*,” NCSA, Sept 21, 2016.
4. “*Should I Stay or Should I Go: Effects of Stellar Winds on Gas Retention and Expulsion in Star Clusters*,” MODEST Meeting, NYC, Sept 10, 2016.
5. “*Animation Techniques in Astronomy*,” Pixar, August 25, 2016.
6. “*Recent Star Formation in Dwarf Galaxies?*” Amherst/UMass Physics and Astronomy Colloquium, Feb 19, 2015.
7. “*AstroBlend: A Python Visualization Library for Blender*,” Theoretical Cosmology seminar, Harvard CfA, Cambridge, MA, Feb 1, 2015.
8. “*Stellar Wind Mixing: Physical Properties and Visualization*,” NSF Symposium, Seattle, WA, Jan 3, 2015.

Education and Public Outreach

2016, 2017	Mentor for Banneker/Aztlán Institutes, CfA
2016, 2017	Instructor for Banneker/Aztlán Institutes, CfA – Intro to Astro Computation and Visualization
2014	Python Programming Bootcamp for Transfer Students
2013	Programming Fundamentals Workshop
2008-2014	Advisor of eight undergraduates on their thesis research
2012, 2015	Sew Your Own Circuit workshop at GeekGirlCon
2012	Guest lecturer, DANM 133 Electronics Class
2012	Co-instructor, Astronomy 202, Graduate level “Radiative Processes”
2011	Visualizing Astronomy workshop
2011	Light and Spectra workshop at Girls Go Tech Faire, NASA AMES
2011	Teaching Assistant, “Introduction to the Cosmos”

Selected Publications

1. **Naiman, J. P.**; Pillepich, Annalisa; Springel, Volker; Ramirez-Ruiz, E.; Hernquist, Lars; Pakmor, Ruediger; Vogelsberger, Mark; Nelson, Dylan; Marinacci, Federico; Genel, Shy; Torrey, Paul, “*First results from the IllustrisTNG simulations: A tale of two elements -- chemical evolution of magnesium and europium*,” accepted to MNRAS, arXiv:1707.03401, 2017
2. **Naiman, J. P.**; Borkiewicz, Kalina; Christensen, A.J., “*Houndini for Astrophysical Visualization*”, PASP, Special Focus on Techniques and Methods for Astrophysical Data Visualization, 129, 975, 2017
3. Pillepich, Annalisa; Springel, Volker; Nelson, Dylan; Genel, Shy; **Naiman, Jill**; Pakmor, Ruediger; Hernquist, Lars; Torrey, Paul; Vogelsberger, Mark, “*Simulating Galaxy Formation with the IllustrisTNG Model*”, submitted to MNRAS, arXiv:1703.02970
4. Weinberger, Rainer; Springel, Volker; Hernquist, Lars; Pillepich, Annalisa; Marinacci, Federico, Pakmor, Ruediger; Nelson, Dylan; Genel, Shy; Vogelsberger, Mark; **Naiman, Jill**; Torrey, Paul, “*Simulating galaxy formation with black hole driven thermal and kinetic feedback*”, MNRAS, 465, 3291, 2017
5. **Naiman, J. P.**, “*AstroBlend: An astrophysical visualization package for Blender*”, Astronomy and Computing, 15, 50, 2016
6. Montes, Gabriela; Ramirez-Ruiz, Enrico; **Naiman, Jill**; Shen, Sijing; Lee, William H., “*Transport and Mixing of r-process Elements in Neutron Star Binary Merger Blast Waves*”, MNRAS, 465, 3291, 2017
7. **Naiman, J. P.**; E. & Ramirez-Ruiz, E.; Debuhr, J.; Ma, C.-P., “*The Role of Nuclear Star Clusters in Enhancing Supermassive Black Hole Feeding Rates During Galaxy Mergers*”, ApJ 81, 10, 2015
8. **Naiman, J.P.**; Ramirez-Ruiz, E.; Lin, D.N.C., “*External Mass Accumulation onto Core Potentials: Implications for Star Clusters, Galaxies, and Galaxy Clusters*,” 2011, ApJ, 735, 25.
9. **Naiman, J.P.**; Ramirez-Ruiz, Enrico, Lin, Douglas N. C., “*Gas Accretion by Star Clusters and the Formation of Ultraluminous X-ray Sources from Cusps of Compact Remnants*,” 2009, ApJL, 705, L153.