Curriculum Vitae (*2-page limit*)

Brant Robertson
Dept. of Astronomy and Astrophysics, University of California, Santa Cruz, brant@ucsc.edu

Professional Preparation

PhD, Astronomy, Harvard University, 2006
MA, Astronomy, Harvard University, 2003
BS, Physics & Astronomy, University of Washington, 2001

Appointments

2011–2015 Assistant Professor, University of Arizona
2009–2011 Hubble Fellow, California Institute of Technology
2006–2009 Spitzer and Institute Fellow, Kavli Institute for Cosmological Physics and Enrico Fermi Institute, University of Chicago

Five Publications Most Relevant to This Proposal

1. "Hydrodynamical Coupling of Mass and Momentum in Multiphase Galactic Winds", Schneider, E. & Robertson, B. *The Astrophysical Journal*, **834**, 144 (2017)
2. "CHOLLA: A New Massively Parallel Hydrodynamics Code for Astrophysical Simulation", Schneider, E. & Robertson, B. *Astrophysical Journal Supplements*, **217**, 24 (2015)
3. "Adiabatic Heating of Contracting Turbulent Fluids", Robertson, B. & Goldreich, P. *Astrophysical Journal Letters*, **750**, 31 (2012)
4. "Computational Eulerian hydrodynamics and Galilean Invariance", Robertson, B., et al. *Monthly Notices of the Royal Astronomical Society*, **401**, 2463 (2010)
5. "Molecular Hydrogen and Global Star Formation Relations in Galaxies", Robertson, B. & Kravtsov, A. *Astrophysical Journal*, **680**, 1083 (2008)

Research Interests and Expertise

Brant Robertson's research interests include theoretical topics related to galaxy formation, dark matter, hydrodynamics, and numerical simulation methodologies. His numerical simulation expertise includes published first author papers on cosmological n-body simulations, smoothed particle hydrodynamics simulations of galaxy formation, and simulations of supersonic turbulence in astrophysical settings. He served as Evan Schneider's PhD advisor during the development of *Cholla*. Robertson served as PI of the OLCF DD Project AST107 *"Scaling the GPU-enabled Hydrodynamics Code Cholla to the Power of Titan"*, DD Project AST119 *"Extending the Physics of the GPU-Enabled CHOLLA Code to the Power of Titan"*, and INCITE Project AST125 *"Revealing the Physics of Galactic Winds with Petascale GPU Simulations"*.

Synergistic Activities

1. Simulated the future galaxy merger of Milky Way and Andromeda for use in educational videos: shown in planetaria shows, the NOVA "Monster of the Milky Way" special, and the COSMOS TV show on FOX; viewed by tens of millions of people.
2. Co-Chair of the Large Synoptic Survey Telescope Galaxies Science Collaboration, a group of more than 100 scientists interested in using the LSST data to learn about galaxy formation and evolution.
3. Steering Committee of the joint NIRCam-NIRSpec James Webb Space Telescope GTO program that will perform the first ultra deep extragalactic survey with JWST in the first year of operations.
4. Member of the Hubble Deep Fields Initiative Committee that recommended the Frontier Fields community program with Hubble Space Telescope surveying strong gravitational lens clusters.
5. Referee for Nature, ApJ, ApJL, ApJS, MNRAS, MNRAS Letters, Astronomy and Astrophysics, and the Journal of Fluid Mechanics-Rapid.

Collaborators (*past 5 years including name and current institution*)