

Benjamin D. Oppenheimer

Center for Astrophysics and Space Astronomy (CASA) Fellow

Department of Astronomy & Planetary Science

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Education

2008 Ph.D	Astronomy	University of Arizona
2004 M.S.	Astronomy	University of Arizona
1999 A.B.	Astronomy & Physics, <i>cum laude</i>	Harvard University

Positions

CASA Fellow	CASA, University of Colorado, Boulder	2016-2018
Research Associate	CASA, University of Colorado, Boulder	2013-2018
VENI Fellow	Leiden University	2010-2013
NOVA Fellow	Leiden University	2009-2010
Postdoctoral Research Associate	University of Arizona	2008-2009

Grants (total awarded while at CASA: \$1,267,295)

PI, HST Proposal ID 15045, Cycle 25, “*HI and Low Metal Ions at the Intersection of Galaxies and the CGM*”, Archive Theory Proposal, \$133,527 (\$11,537 to co-I at Northwestern)

PI, HST Proposal ID 14577, Cycle 24, “*Resolution and Physics Beyond Simulations: New Multi-Phase Models of the Circumgalactic Medium*”, Archive Theory Proposal, \$121,281

PI, HST Proposal ID 14308, Cycle 23, “*Characterizing group baryons and galaxies through EAGLE zoom simulations.*”, Archive Theory Proposal, \$123,751

PI NASA Astrophysical Theory Program, 14-ATP14-0142, “*Dynamical Chemical Evolution*”, \$388,655

PI, HST Proposal ID 13262, Cycle 21, “*Cosmic HI: a tracer of the physics regulating galaxy formation over a Hubble time*”, Archive Theory Proposal, \$138,398

PI, HST Proposal ID 12841, Cycle 20, “*The Sensitive Side of Galaxy Formation: How sub-L* Galaxies Accrete, Form Stars, and Enrich the IGM*”, Archive Theory Proposal, \$94,598

Co-I, 10 HST general observing proposals garnering 558 orbits and 2 HST archival proposals

Co-I, LSST Education & Public Outreach grant, Oppenheimer to lead production of a 90-second Galaxy Evolution video clip at Fiske Planetarium Production studios by December 2018, \$42,005

PI, NASA High-End Computer (HEC) resources on Pleiades, SMD-16-7821, 3,276,803 CPU Hours

PI, Old Observatory Workshop “*Leiden Summer CGM-Galaxy Interface Workshop*”, 2000 EUR from NOVA

Co-PI with R. Crain, Lorentz Center Workshop “*The Dynamic Nature of Baryons in Halos*”, 10,000 EUR, plus 4,500 EUR from NOVA, and 1000 EUR each from SRON and ASTRON

~80,000 EUR research and travel budget in four years at Leiden as part of VENI and NOVA fellowships. Spent on computer hardware, travel, visitors, conference organizing, and public outreach.

Current user of the Summit & Janus supercomputers at CU Boulder, the COSMA5 Durham supercomputer (DiRAC), and a previous user at the SuperMUC supercomputer at the Leibniz Supercomputing Center

Publication Summary

Three selected References:

1. “Deviations from hydrostatic equilibrium in the circumgalactic medium: spinning hot haloes and accelerating flows”, Oppenheimer, B. D., 2018, MNRAS, 480, 2963
2. “Bimodality of low-redshift circumgalactic O VI in non-equilibrium EAGLE zoom simulations”, Oppenheimer, B. D., Crain, R. A., Schaye, J., Rahmati, A., Richings, A. J., Trayford, J. W., Tumlinson, J., Bower, R. G., Schaller, M., Theuns, T. 2016, MNRAS, 460, 2157
3. “Feedback and Recycled Wind Accretion: Assembling the $z=0$ Galaxy Mass Function”, Oppenheimer, B. D., Davé, R., Keres, D., Fardal, M., Katz, N., Kollmeier, J. A., & Weinberg, D. H. 2010, MNRAS, 406, 2325

Publications statistics as of May 2018: 75 refereed publications (15 as 1st author) • 5046 total citations (1457 citations as 1st author) • h-index 37 (12 for 1st author publications)

Student Mentoring

Current students: Ryan Horton (CU Boulder, Advisor of Masters/Ph.D student being directly supported by my grants), Trystyn Berg (Victoria Ph.D), Suphawit Duangphumek (CU Boulder undergraduate), Austin Micho (CU Boulder undergraduate), Conor Evans (CU Boulder undergraduate), Ezra Huscher (CU Boulder undergraduate), Jon Davies (Liverpool John Moores Ph.D), Nastasha Wijers (Leiden Ph.D)

Former students: Marijke Segers (Leiden), Alex Richings (Leiden), Joe Burchett (Massachusetts), Amanda Brady Ford (Arizona), Daniel Anglés-Alcázar (Arizona), Jared Gabor (Arizona)

Service

Committee Assignments: Center for Astrophysics and Space Astronomy (CASA) Executive Committee, elected May 2018, serving July 2018-June 2019
CASA Fellows Committee, elected Nov. 2016, serving March 2017-present

Conference Organizing: “The ARI at LJMUCGM Workshop”, Liverpool Medical Institution, May-June 2018, Co-creator and Organizer
“*Leiden Summer CGM-Galaxy Interface Workshop*”, Leiden Old Observatory, June 2013, Creator and Lead Organizer
“*The Dynamic Nature of Baryons in Halos*”, Lorentz Center Workshop, Aug 2012, Co-creator and Organizer

Thesis Committee: Marijke Segers, Ph.D, Leiden, November 2017
Ryan Horton, Masters, CU Boulder, October 2017 (Primary Advisor)
Luz Angela Garcia Penaloza, Ph.D, Swinburne, October 2017
Josh Maloney, Ph.D, CU Boulder, May 2017

Journal Referee: MNRAS, ApJ, ApJL, Science

Committee Reviewer: NSF Peer Review Panel, March 2018 & June 2010
STFC DiRAC Resource Allocation Committee, Jan. 2018 & Oct. 2015
Estonian Research Council Postdoctoral Applications Reviewer, Dec. 2016
NASA ATP 2016 Review Panel, Oct. 2016
Austrian Science Fund Grant Reviewer, Apr. 2015
HST Cycle 24 External Reviewer, May 2016
HST Cycle 22 Peer Review Panel, June 2014

Outreach: LSST Education & Public Outreach grant to visualize Milky Way, March 2018
Founder of Old Observatory tours targeting underprivileged school children around Leiden, funded by 3000 EUR of my VENI grant, 2014
Leiden University Discovery Talk, Nov. 2010

Teaching

CU Boulder, ASTR 4840 seminar, Spring 2017: Led student visualization independent research seminar.

CU Boulder, ASTR 6000 seminar, Fall 2014: Designed and taught astrophysics graduate seminar on dark matter with Erica Ellingson.

Challenges in Modern Cosmology: Dark Matter and Dark Energy School, Natal, Brazil, May 2014: Created and presented three lectures on dark matter simulations at the International Institute of Physics

Invited Colloquia & Seminars

University of Washington (7/2018), Carnegie (4/2018 & 10/2010), New Mexico State University (10/2017 & 10/2012), University of Zurich, (8/2016), Notre Dame (4/2016), University of Denver, (3/2013), Columbia University (1/2013), Rutgers University (1/2013), UC Santa Barbara (1/2012), University of Massachusetts (9/2011), Cambridge University (5/2011), Monash University (4/2011), Swinburne University (3/2011), South Africa Astronomical Observatory (10/2010)

Selected Conference Presentations

Northwestern Circumgalactic Medium Workshop, Evanston, Invited Talk, July 2018
Circle of Life Workshop, Kruger Park, South Africa, Invited Talk, August 2017
In & Out. What rules the galaxy baryon cycle, MIAPP, Germany, Invited Talk & Review, July 2017
Intergalactic Interactions, Edinburgh, Scotland, Invited Talk, June 2013
Baryon Cycle, Irvine, CA, Talk, June 2012
May Symposium, Space Telescope Science Institute, Baltimore, MD, Invited Talk, May 2012
Galaxy Formation, Durham, England, Talk, July 2011
The Cosmic Odyssey of Baryons Conference, Marseilles, Invited Review, June 2011
H-Metal Workshop, El Escorial, Spain, Invited Review, Sept. 2010
Cosmological Reionization Conference, Allahabad, India, Invited Talk, Feb. 2010
Missing Baryons, Accretion, & Feedback, Sydney, Australia, Invited Talk, Dec. 2009
Chemical Enrichment of the IGM, Lorentz Center, The Netherlands, Talk, May 2009