

Drummond B. Fielding

Curriculum Vitae

Flatiron Research Fellow

Center for Computational Astrophysics, Flatiron Institute,
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Education

PhD 2018, MA 2014, Astrophysics, University of California, Berkeley. Advisor: *Eliot Quataert*
BS, BA 2012, Physics, Mathematics, Johns Hopkins University.

Professional Appointments

Assistant Professor, Cornell University, Department of Astronomy	2024-
Visiting Assistant Professor, Cornell University, Department of Astronomy	2023-2024
Flatiron Research Fellow, CCA	2018-present
Visiting Scholar, Indian Institute of Science	2016
Graduate Researcher, U.C., Berkeley	2012-2018

Honors and awards

Flatiron Fellowship	2018-2024
Outstanding Graduate Student Instructor Award	2014
NSF Graduate Research Fellowship	2014-2017
Berkeley Graduate Fellowship	2012-2014
Donald E. Kerr Award for Outstanding Physics Undergraduate	2012
The Phi Beta Kappa Society	2012

Research interests

galactic winds	stellar feedback	fluid dynamics
circumgalactic medium	galaxy formation	plasma physics
cosmic ray transport	MHD turbulence	machine learning

Grants

Resolving Cosmic Ray Transport by pushing the Frontier of MHD Turbulence, INCITE, PI, 2024
—900,000 Node hours on *Frontier* the world's first exascale supercomputer.

Galactic Winds Unveiled: Leveraging Cloud Simulations with Radiative Transfer to Constrain Feedback, Legacy HST-AR, STScI, Co-PI, 2024-2026
—3 years of funding for a graduate student and one month of summer funding per year

Resolving Turbulent Multiphase Gas Dynamics, EURO HPC, co-PI, 2023 —900,000 Node hours on *Lumi-G*.

DUVET: Mapping Outflows and the Inner CGM in Starbursting Disks, KCWI, Co-I, 2020

Visiting scholar grant to work Indian Institute of Science with Prof. Prateek Sharma, APS-IUSSTF, 2016

Towards an Understanding of the Origin of OVI in the Circumgalactic Medium, HST ARG, Co-I, 2017

The Physics of Supernova Feedback: Global 3D Simulations of Galactic Disks, NSF XSEDE, Co-I, 2016-2018

Conduction, Convection, and Thermal Instability in Hot Halos, NSF XSEDE, Co-I, 2016-2017

Student advising

Iryna Butsky — Graduate Student — University of Washington + CCA predoctoral fellow
Viraj Pandya — Graduate Student — UC Santa Cruz + CCA predoctoral fellow
Matthew Abruzzo — Graduate Student — Columbia
Anthony Chow — Graduate Student — Columbia
Zirui Chen — Undergraduate Student — Columbia
Brent Tan — Graduate Student — UC Santa Barbara + CCA predoctoral fellow
Minami Roy — Graduate Student — Raman Research Institute + CCA predoctoral fellow
Mitali Damle — Graduate Student — University of Potsdam + CCA predoctoral fellow

Public outreach

Founder and leader of *The Astro Club*. Monthly meetings 2020–present. [Democracy Prep Charter Middle School](#), Harlem, NY.
Astronomy career day, [Democracy Prep Charter Middle School](#), Harlem, NY 2019
Taught a month-long series of astronomy classes to 2nd and 3rd grade students. 2017. North Oakland Community Charter School, Oakland, CA
Undergrad mentor UC Berkeley Astronomy, 2016–2017
UC Berkeley Astronomy Department Public Liaison, 2015
East Bay Astronomical Society Public Lecture, 2014, Chabot Space and Science Center
The Berkeley Compass Project Summer Evening Instructor, 2013

Professional services & teaching

Founder and organizer of the **New York Area Fluid Dynamics Meeting**, a cross-disciplinary monthly meeting of local fluid dynamicists, 2020
Flatiron Pre-Doctoral Program graduate student mentor, 2019–
Graduate Student Instructor: Astronomy C12 ‘The Planets’(UC Berkeley)
Graduate Student Instructor: Astronomy 7A (UC Berkeley)
Referee: MNRAS, ApJ, ApJL
NSF proposal evaluation panelist, 2020

Selected recent invited presentations

Invited Review, *New simulations for new problems in galaxy formation*, conference, Paris (12/2023)
Invited Talk, Salpeter Workshop on the Interstellar Medium, Cornell (12/2023)
Seminar, Computational Research in Boston and Beyond (CRIBB), MIT (12/2023)
Colloquium, Johns Hopkins University, Physics and Astronomy Department (11/2023)
Colloquium, Columbia University, Astronomy Department (10/2023)
Invited talk, *Interfaces and Mixing in Fluids, Plasmas, and Materials*, conference, KITP (9/2023)
Colloquium, Michigan State University, Physics and Astronomy Department (10/2023)
Invited Review, *MIST2023: Cosmic turbulence and Magnetic fields: physics of baryonic matter across time and scales*, conference (9/2023)
Invited talk, *CGM@ND*, conference (9/2023)
Invited talk, *New Views on Feedback & the Baryon Cycle in Galaxies*, conference (8/2023)

Invited talk, *Modeling multiphase astrophysical systems*, conference (5/2023)
Invited talk, *Jim's Fest/Athena++*, conference (5/2023)
Colloquium, Yale University, Astronomy Department (2/2023)
Colloquium, Cornell University, Astronomy Department (1/2023)
Astrophysics Seminar, UIUC (11/2022)
Joint Astrophysics Colloquium, Pitt-CMU (10/2022)
Invited talk, *What Matter(s) Around Galaxies*, conference (9/2022)
Invited talk, *Ringberg Computational Galaxy Formation 2022*, conference (4/2022)
Invited talk, *Wolfe Symposium*, conference (3/2022)
Theoretical AstroPhysics Including Relativity & Cosmology seminar, Caltech (12/2021)
Astronomy Department seminar, The Racah Institute of Physics, Hebrew University of Jerusalem (12/2021)
Invited Talk, *Baltimore Wind Workshop*, Johns Hopkins University (8/2021)
Astrophysics Colloquium, UCSD-SDSU (4/2021)
[Keynote speaker](#), KITP workshop *Fundamentals of Gaseous Halos* (1/2021)
Invited talk, KITP conference *On the Origin, Nature, and Mixing of Multiphase Gas in Astrophysics* (10/2020)
Gaggle Seminar, Carnegie Institution for Science (8/2020)
Invited talk, CLEARNESS conference IAP (6/2020)
CGI Colloquium, U.C. Santa Cruz (4/2020)
Contributed Talk, Universality of Turbulence Conference, Flatiron Institute, NY (12/2019)
SFIR Seminar, Princeton University (11/2019)
Astro Seminar, NYU CCPP, New York NY (10/2019)
Invited Talk, CGM conference, Berlin Germany (10/2019)
Lunch Talk, CCA, New York NY (10/2019)
Contributed Talk, Feedback conference, Spetses Greece (6/2019)
Invited seminar, Turbulence workshop, Aspen Center for Physics (6/2019)
Contributed Talk, CGM/IGM conference, Spineto Italy (6/2019)
Invited Talk, *athena++* conference, Las Vegas NV (3/2019)
Invited Talk, CGM conference, Northwestern, Chicago IL (8/2018)
Invited Talk, CGM/DLA conference, Big Sur CA (3/2018)
TAPIR Seminar, Caltech, Pasadena CA (11/2017)
Astronomy Colloquium, Raman Research Institute (12/2016)
Astronomy Department Colloquium, Indian Institute of Science (10/2016)