

Matthew J. Rutala

Dublin Institute for Advanced Studies
mrutala [at] cp.dias.ie
[mjrutala.github.io](https://github.com/mjrutala)
Current as of: April 21, 2023

RESEARCH POSITIONS

PRESENT MARCH 2023	Postdoctoral Fellow Dublin Institute for Advanced Studies (DIAS) Dublin, Ireland Supervisor: Prof. Caitriona Jackman
FEBRUARY 2023 SEPTEMBER 2017	Research Fellow Boston University (Prof. John Clarke) Boston, Massachusetts Experience with HST observations, in-situ measurements, and models of Jupiter's magnetosphere-driven aurorae using IDL, Python, NASA NAIF/SPICE.
MAY 2017 SEPTEMBER 2015	Undergraduate Research Assistant Rutgers University (Prof. Jack Hughes) New Brunswick, New Jersey Experience with Chandra observations of supernovae remnants using IDL.
AUGUST 2015 JUNE 2015	REU Research Assistant Boston University (Prof. Catherine Espaillat) Boston, Massachusetts Experience with modeling protoplanetary discs using Python.
MAY 2015 JUNE 2014	Undergraduate Research Assistant Rutgers University (Prof. Troy Shinbrot) New Brunswick, New Jersey Experience with experimental fluid flows and granular physics.

TEACHING EXPERIENCE

MAY 2019 JANUARY 2019	Teaching Fellow AS100 "Cosmic Controversies" at Boston University
DECEMBER 2018 SEPTEMBER 2018	Teaching Fellow AS107 "Life Beyond Earth" at Boston University
DECEMBER 2017 JANUARY 2017	Coadjutant Coursera MOOC "Analyzing the Universe" via Rutgers University

EDUCATION

FEBRUARY 2023	Ph.D. in Astronomy Titled: "Shedding New Light on the Enigmatic Motions of Jupiter's Auroral Main Emission" Boston University <i>Boston, Massachusetts</i> Advisor: Prof. John T. Clarke
SEPTEMBER 2019	M.A. in Astronomy Boston University <i>Boston, Massachusetts</i> Advisor: Prof. John T. Clarke
MAY 2017	B.Sc. in Astrophysics and Linguistics <i>summa cum laude</i> Rutgers University <i>New Brunswick, New Jersey</i> Advisor: Prof. Jack P. Hughes Graduated with Highest Honors in Astrophysics and Honors in Linguistics

PUBLICATIONS

Rutala., M. J., Clarke, J. T., Mullins, J. D., Nichols, J. D. (2022) Illuminating the Motions of Jupiter's Auroral Dawn Storms. JGR Space Physics, doi:10.1029/2022JA030448

Vogt, M., **Rutala, M.**, Bonfond, B., Clarke, J. T., Moore, L., Nichols, J. D. (2022) Variability of Jupiter's Main Auroral Emission and Satellite Footprints Observed With HST During the Galileo Era. JGR Space Physics, doi:10.1029/2021JA030011

Shinbrot, T., **Rutala, M.**, Herrmann, H. (2017). Surface contact charging. Phys. Rev. E, 96:032912.

Shinbrot, T., **Rutala, M.**, Montessori, A., Prestininzi, P., Succi, S. (2015). Paradoxical ratcheting in cornstarch. Physics of Fluids, 27(10):103101.

ABSTRACTS

JULY 2022	Shedding New Light on the Enigmatic Motions of Jupiter's Auroral Main Emission Talk at the Magnetospheres of the Outer Planets conference
DECEMBER 2021	The role of Corotation Enforcement Currents in driving the Behavior of Jupiter's Ultraviolet Main Emission Talk at the American Geophysical Union Fall conference
JULY 2021	Illuminating the Physics behind the Motions of Jupiter's Auroral Dawn Storms Poster at the Magnetospheres of the Outer Planets conference
DECEMBER 2020	Illuminating the Physics of Jupiter's Auroral Dawn Storms Poster at the American Geophysical Union Fall conference
JUNE 2019	New Insights into Jupiter's Dawn Storms Poster at the Magnetospheres of the Outer Planets conference
JULY 2018	Characterizing Local and Interplanetary Control of Jupiter's Auroral Dawn Storms using HST and Juno Poster at the Magnetospheres of the Outer Planets conference
MAY 2015	Size Segregation in Asteroid Regolith Poster at the New Jersey Space Grant Consortium Poster Session
APRIL 2015	Size Segregation in Asteroid Regolith Poster at the Aresty Research Symposium
AUGUST 2014	Paradoxical Ratcheting in Oobleck Poster at the Aresty Summer Research Symposium

AWARDS

JUNE 2021	Research Fellowship Awarded by: The Massachusetts Space Grant Consortium
JUNE 2020	Research Fellowship Awarded by: The Massachusetts Space Grant Consortium
MAY 2019	Outstanding Teaching Fellow in the Department of Astronomy Awarded by: Boston University College and Graduate School of Arts and Sciences
MAY 2017	Honors Scholar Awarded by: Rutgers University School of Arts and Sciences
MAY 2017	Richard T. Weidner Physics Prize Awarded by: Rutgers University Department of Physics and Astronomy
MARCH 2016	Phi Beta Kappa Scholar Awarded by: The Phi Beta Kappa Society
SEPTEMBER 2015	Herman Y. Carr Scholarship Awarded by: Rutgers University Department of Physics and Astronomy
OCTOBER 2014	Research Fellowship Awarded by: the New Jersey Space Grant Consortium (NJSGC)

OUTREACH

PRESENT	Boston University Public Open Night
SEPTEMBER 2017	An event hosted by the graduate students at Boston University which invites the public to view the night sky and learn more about astronomy.
APRIL 2022	Boston University Academy Open Night An open-night-like event with physical demonstrations of spectroscopy and plasma dynamics for students of the Boston University Academy interested in studying science and astronomy.
AUGUST 2019	GWISE Open Night An open-night-like event held for the members of the Graduate Women In Science and Engineering group at Boston University.
JULY 2018	Precollege Women Open Night An open-night-like event for held for precollege women interested in studying science in college.
JUNE 2018	Space Science for Kids An educational event for elementary- and middle-school children, coinciding with the 30 th anniversary of the Center for Space Physics at Boston University.

LEADERSHIP

APRIL 2022	Graduate Student Social Event Coordinator
AUGUST 2018	Helped to coordinate weekly social events, including Friday evening socials and board game nights with pizza provided for students, postdocs, and faculty.
SEPTEMBER 2019	Graduate Student Representative
SEPTEMBER 2018	Represented the interests of the graduate students to departmental faculty, so that students could anonymously voice questions or complaints; arranged weekly journal clubs and seminars for students to present their own research; arranged department-sponsored social events to promote student interaction.