Alexander B. Gurvich galaxy formation + data visualization

CONTACT INFORMATION

Department of Physics & Astronomy
CIERA, Northwestern University
1800 Sherman Avenue, 8027
Evanston, IL 60201

email agurvich@u.northwestern.edu
website https://alexbgurvi.ch
Twitter @alexbgurvich
github agurvich
orcid orcid.org/0000-0002-6145-3674

CURRENT POSITION

Northwestern University 2016 - present
NSF Graduate Fellow 2018 - 2023

EDUCATION

Northwestern University *exp.* 2023
Ph.D. Astronomy, Advisor: Claude André Faucher-Giguère

Northwestern University 2018
M.S. Astronomy

Carnegie Mellon University 2016
B.Sc. Physics, Astrophysics Track
College & University Honors

GRANTS / FELLOWSHIPS

5. **NSF Graduate Fellowship** 2020 - 2023
National Science Foundation Fellowship · recruits high-potential, early-career scientists and engineers and supports their graduate research for three years.

4. **IDEAS Data Science Training Fellowship** 2019 - 2020
National Science Foundation Traineeship/Fellowship · supports graduate students in data-enabled science and engineering by offering NSF level graduate funding for one year and access to a battery of interdisciplinary courses in statistics and machine learning. Fellows also receive funding for an internship in industry and the opportunity to contribute to the development of a citizen science project. For more information visit ideas.ciera.northwestern.edu.

3. **Blue Waters Graduate Fellowship** 2018 - 2019
National Center for Supercomputing Applications Fellowship · provides PhD students with a year of support, an allocation of 50,000 node-hours on the powerful Blue Waters petascale computing system, and funds for travel to a Blue Waters Symposium to present research progress and results.

2. **DSI Data Science Fellowship** 2016 - 2017
Northwestern University Fellowship · supports first year graduate students dedicated to the exploration of fundamental and applied advancement in data science as part of the university's Data Science Initiative (DSI). Up to 15 students are awarded this additional funding per year.

1. **NASA Illinois Space Grant Research Program** 2016
State Grant · supports undergraduate and incoming graduate students for a 10 week summer research session before the official start of classes. Up to 10 students are awarded this source of funding per year.

STUDENTS MENTORED (2 high school + 2 undergrad/grad + 1 grad)

5. Megan Tillman (grad) - 2022 - Rutgers University, NJ - The Low-redshift Lyα Forest as a Constraint for Models of AGN Feedback

4. Maggie Kraft (high school) - 2021 - Lane Technical High School Chicago, IL - Zooniverse citizen science project PI interviews for Into the "Zooniverse" annual report

3. Kei Smith (high school) - 2021 - James B. Conant High School, Schaumburg, IL - Zooniverse citizen science project PI interviews for Into the "Zooniverse" annual report

2. Mahlet Shiferaw (undergrad) - 2018 - Harvard University - Visualizing CHIMES chemical abundances in Firefly

1. José Flores Velázquez (undergrad/grad) - 2017-2019 - Cal Poly Pomona / UC Irvine - The time-scales probed by star formation rate indicators for realistic, bursty star formation histories from the FIRE simulations

SELECTED AWARDS/HONORS

4. **Northwestern University, Data Visualization Contest** 2022
   Animated Visualization Competition Grand Prize

3. **Northwestern Science in Society Scientific Image Contest** 2018
   Second Place Prize & People's Choice Award

2. **Laws of Star Formation Conference** 2018
   Honorable Mention in Poster Competition

1. **Northwestern University, Computational Research Day** 2018
   Animated Visualization Competition Grand Prize

– COMPUTATIONAL RESOURCES ALLOCATED

2. **Quest** 35k NH
   P.I. · Northwestern University
   GPU accelerated interstellar chemistry with WIND, a (mostly) general stiff ODE solver

1. **Blue Waters** 50k NH
   P.I. · National Center for Supercomputing Applications
   GPU Accelerated Time-Dependent Chemistry in the Context of Galaxy Formation with WIND

SELECTED PUBLICATIONS (Full ADS Library; 12 refereed + 4 in review + 6 non-refereed)

6. Burkhart, B., Tillman, M., **Gurvich**, **A. B.**, et al. 2022, The Low-redshift Lyα Forest as a Constraint for Models of AGN Feedback, ApJL, 933, L46

5. **Gurvich**, **A. B.**, Stern, J., Faucher-Giguère, C.-A., et al. 2022, Rapid disc settling and the transition from bursty to steady star formation in Milky Way-mass galaxies, arXiv e-prints; subm. MNRAS

4. Flores Velázquez, J. A., **Gurvich**, **A. B.**, Faucher-Giguère, C.-A., et al. 2021, The time-scales probed by star formation rate indicators for realistic, bursty star formation histories from the FIRE simulations, MNRAS, 501, 4812

3. **Gurvich**, **A. B.**, Faucher-Giguère, C.-A., Richings, A. J., et al. 2020, Pressure balance in the multiphase ISM of cosmologically simulated disc galaxies, MNRAS, 498, 3664

2. **Gurvich**, **A.**, Burkhart, B., & Bird, S. 2017, The Effect of AGN Heating on the Low-redshift Lyα Forest, ApJ, 835, 175

1. **Gurvich**, **A.**, & Mandelbaum, R. 2016, The impact of correlated noise on galaxy shape estimation for weak lensing, MNRAS, 457, 3522

– SOFTWARE

4. **Gurvich**, **A. B.**, & Geller, A. M. 2022, Firefly: a browser-based interactive 3D data visualization tool for millions of data points, arXiv e-prints; subm. ApJS

3. **Gurvich**, **A. B.** 2022, FIRE Studio: Movie making utilities for the FIRE simulations, Astrophysics Source Code Library, ascl:2202.006

2. Grudić, M., & **Gurvich**, **A. B.** 2021, pytreegrav: A fast Python gravity solver, JOSS, 6, 3675

1. Geller, A. M., & **Gurvich**, **A. B.** 2018, Firefly: Interactive exploration of particle-based data, Astrophysics Source Code Library, ascl:1810.021