Julian Shapiro - CV

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Biography

I am an amateur astronomer researching supernova remnants, planetary nebulae, AGN/quasars, and dwarf galaxies and a high school student at the Dalton School. My work involves survey science and analysis through optical imaging and spectroscopy. In 2024-25, I conducted galactic plane [O III] surveys, leading to the discovery of new EELR/quasar light echo, supernova remnant, and planetary nebula candidates. I collected follow-up observations using the SALT telescope HRS spectrograph. I collaborated with the MDW Hα Sky Survey team at Columbia University, combining search efforts across wavelengths. I work with a team led by the Space Telescope Science Institute to uncover a new stage of shock-powered planetary nebula evolution. In 2025, I discovered candidate backsplash dwarf galaxies around M101, providing observational insights into the galactic evolution of these galaxies theorized from simulations.

Education

The Dalton School, 108 E. 89th St. New York, NY — 2022-present
Advanced courses in Physics, Astronomy, French, Chemistry, Math, Data science, Algorithms

Experience

- Space Telescope Science Institute/PN Research Team — 2025-present
  - Research team member uncovering ghost planetary nebulae; a new phase of PN evolution
- Columbia University Astrophysics Department — 2024-2025
  - Survey science collaborator with the MDW Hα Sky Survey team
- Deep Sky Collective/New Horizons — 2022-present
  - Deep astro imaging research team member
- Independent Astronomer — 2021-present
  - Survey science; local volume dwarf galaxy survey, galactic plane [O III] surveys for planetary nebulae/supernova remnants
- Independent Study — 2024-2025
  - Independent study at The Dalton School on discovery of planetary nebulae/SNRs

Papers in Preparation

- Shapiro et al. in prep.: "Discovery of Isolated, Quenched, and Likely Backsplash Galaxies Near M101" — 2025
- Shapiro et al. in prep.: TBD, newly discovered extensive shocked PN halo — 2025

Awards and Honors

- National Young Astronomer Award — 2025
- Sir Patrick Moore Prize for Achievements in Astronomy — 2024
- National Young Astronomer Award Runner-up — 2024
- Astrophotography Prize – Remote Imaging — 2024
- Youngest Discoverer of New Planetary Nebulae/Supernova Remnants (15) — 2024

Contributed Talks

- Black Hole Astrophysics, APS Global Physics Summit, CA, USA — 2025
- AGN/Quasars, AAS 245, MD, USA — 2025

Research Skills/Interests

- Experience in planning and leading survey science efforts
- Experience with obtaining and analyzing astronomical spectra, CCD observations, photometry
- Programming knowledge in python for astronomy applications
- Interests in AGN/quasars, dwarf galaxies, planetary nebulae and supernova remnants

Outreach

- Invited Speaker at Amateur Observer's Society New York — 2025
- Invited Speaker at the Astronomical League Annual Meeting — 2024, 2025
- Founder and Head of Dalton Astronomy Club — 2024