

Ray S. Sharma

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Education

Rutgers, The State University of New Jersey
Ph.D., Physics and Astronomy, 2022 (anticipated)

University of Washington

B.S., Physics, 2015
B.S., Astronomy, 2015

Professional Experience

Rutgers, The State University of New Jersey

Ph.D. Candidate (Adv: Alyson Brooks)

Thesis: “Growth and Feedback of Simulated Supermassive Black Holes”

- Dwarf galaxy evolution in cosmological simulations
- Impact of supermassive black holes on dwarf galaxy evolution
- Role of galaxy mergers in fueling active galactic nuclei
- Active galactic nuclei in dust radiative transfer simulations

University of Washington

Undergraduate Researcher (Adv: Eric Agol, John Ruan)

- Variability of carbon-IV broad-line emission in SDSS active galactic nuclei

Teaching and Mentoring

Rutgers, The State University of New Jersey

Teaching Assistant for Classical Mechanics I/II

Teaching Assistant for General Physics Lab I

Graduate of DELTA-P and SIGMA-P

- Participated in two, semester-long teaching and mentorship seminars

Research Adviser for RU-PREP program

- Developed a six week long intensive research project and advised undergraduates researchers

Research Adviser for undergraduate researcher

- Developed a long-term undergraduate research project and guided Rachel Campo in astronomy research and analysis techniques

Skills

Computing: Python, Javascript, C++, L^AT_EX, Git, bash

- Developer for POWDERDAY, open-source radiative transfer software
- Contributor for TANGOS, simulation analysis database tool

Languages: English (native), Hindi (native), Spanish (basic)

Awards and Grants

Co-I, NSF Astronomy & Astrophysics Grants AST-1813961 (2018-2021)
“Collaborative Research: Of Mice and Monsters – Investigating Black Hole Growth in Dwarf Galaxies”

Co-I, HST Theory Grant HST-AR-14281 (2017-2019) “Triggering and Quenching: simulations and mock observations of Active Galactic Nuclei and their hosts”

2021 Robert A. Schommer Prize for Best Refereed Article

Selected Talks

Contributed Conference Talks

- AAS Winter Meeting (Seattle, 2015/2019)
- The Galaxy Workshop (Santa Cruz, 2018/2019)
- The Art of Measuring Galaxy Physical Properties (Milan, 2019)
- The NBodyShop Excellence Conference (2021)

Invited Talks, Seminars, and Colloquia

- Galread Seminar, Princeton University (2019)
- Galaxy Group Meeting, Center for Computational Astrophysics (2019-2021)
- Galaxy Evolution with CANDELS (2021)

Publications

(4) The Connection between Mergers and AGN Activity in Simulated and Observed Massive Galaxies

Sharma, R.S.; Choi, E.; Somerville, R.S.; Snyder, G.F.; Kocevski, D.D.; Moster, B.P.; Naab, T.; Narayanan, D.; Ostriker, J.P.; Rosario, D.J. 2021. *ApJ*, submitted, arXiv:2101.01729

(3) Powderday: Dust Radiative Transfer for Galaxy Simulations

Narayanan, D.; Turk M.J.; Thomas R.; Kelly A.J.; McClellan, B.C.; **Sharma, R.S.**; Garg, P.; et al. 2020. *ApJ*, submitted, arXiv:2006.10757.

(2) Black Hole Growth and Feedback in Isolated ROMULUS25 Dwarf Galaxies

Sharma, R.S.; Brooks, A.M.; Somerville, R.S.; Tremmel, M.; Bellovary, J.; Wright, A.C.; Quinn, T.R. 2020. *ApJ*, in press, arXiv:1912.06646

(1) The Formation of Isolated Ultra-Diffuse Galaxies in Romulus25

Wright, A.C.; Tremmel, M.; Brooks A.M.; Munshi, F.; Nagai, D.; **Sharma, R.S.**; Quinn, T.R. 2020. *MNRAS*, accepted, arXiv:2005.07634.