

Alankar Dutta

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About

- 📌 I am currently an integrated Ph.D. (M.Sc. + Ph.D.) candidate at the Indian Institute of Science, Bangalore, India.
- 📌 I work in Computational Astrophysics, especially on the study of idealized modeling and simulation of the multiphase gas environments in the Circumgalactic medium around galaxies.
- 📌 I am a Prime Minister's Research Fellow supported by the Ministry of Education, Government of India.

Education

- 2017 – present 📌 **Integrated M.Sc. + Ph.D., Indian Institute of Science, Bangalore, India**
Computational Astrophysics.
- 2014 – 2017 📌 **B.Sc. Physics, Presidency University, Kolkata, India**
Undergraduate majoring in Physics.

Research Publications

Journal Articles

- 1 **A. Dutta**, P. Sharma, and D. Nelson, "Cooling flows around cold clouds in the circumgalactic medium: steady-state models and comparison with TNG50," *Monthly Notices of the Royal Astronomical Society*, vol. 510, no. 3, pp. 3561–3574, Mar. 2022. [DOI: 10.1093/mnras/stab3653](#). arXiv: 2107.02722 [astro-ph.GA].
- 2 V. Kanjilal, **A. Dutta**, and P. Sharma, "Growth and structure of multiphase gas in the cloud-crushing problem with cooling," *Monthly Notices of the Royal Astronomical Society*, vol. 501, no. 1, pp. 1143–1159, Feb. 2021. [DOI: 10.1093/mnras/staa3610](#). arXiv: 2009.00525 [astro-ph.GA].
- 3 **A. Dutta** and P. Sharma, "On Modeling CC85 Wind in an Expanding Local Box," *Research Notes of the American Astronomical Society*, vol. 3, no. 10, p. 148, Oct. 2019. [DOI: 10.3847/2515-5172/ab4bd8](#). arXiv: 1910.06339 [astro-ph.GA].
- 4 P. Chakraborty, S. Chatterjee, **A. Dutta**, and A. D. Myers, "Mean Occupation Function of High-redshift Quasars from the Planck Cluster Catalog," *Publications of the Astronomical Society of the Pacific*, vol. 130, no. 988, p. 064 001, Jun. 2018. [DOI: 10.1088/1538-3873/aaab3e](#). arXiv: 1801.06522 [astro-ph.GA].
- 5 **A. Dutta**, "X-ray environments of supermassive black holes," May 2017. [DOI: 10.13140/RG.2.2.26190.97606](#).

Skills

- Languages 📌 Proficient in Bengali, English and Hindi. Also knows German (A1).
- Coding 📌 C/C++, Python, \LaTeX . Specialized in computational hydrodynamics.
- Misc. 📌 Academic research, teaching, high performance computing, GPU programming, data analysis, and 3D data visualization. Tools/Codes used: PLUTO, Arepo, Cloudy, ParaView, ...

Conferences, Workshops and Research visits

- Sept 2022 📌 *What matter(s) around galaxies 2022: Connecting the dots between the CGM and the larger-scale environment*, organized by **Università Milano-Bicocca** at Champoluc, Aosta Valley, Italy
- Aug 2022 📌 *6th ICM Theory and Computation Workshop*, **Niels Bohr Institute**, Copenhagen, Denmark
- Mar 2022 📌 Astronomical Society of India Meeting, **ASI 2022, IIT Roorkee**, India
- Jan 2021 📌 *KITP Program: Fundamentals of Gaseous Halos*, **Kavli Institute for Theoretical Physics**, Santa Barbara, California, USA
- Feb 2020 📌 Astronomical Society of India Meeting, **ASI 2020, IISER Tiupati**, India
- May – Aug 2019 📌 **Max Planck Institute for Astrophysics**, Garching, Germany *as a visiting student*.
- Jan 2019 📌 *Cosmology: The Next Decade*, **International Centre for Theoretical Sciences (ICTS)**, Bangalore, India

References

- 📌 **Prateek Sharma**, Associate Professor, Indian Institute of Science, Bangalore, India
✉ prateek@iisc.ac.in
- 📌 **Dylan Nelson**, Emmy Noether Research Group Leader, Institute for Theoretical Astrophysics, Center for Astrophysics, Heidelberg University, Germany
✉ dnelson@uni-heidelberg.de
- 📌 **Suchetana Chatterjee**, Assistant Professor, Presidency University, Kolkata, India
✉ suchetana.physics@presiuniv.ac.in