

Tabassum Shahriar Tanvir

POSTDOCTORAL RESEARCHER · ASTROPHYSICS

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Education

The Australian National University

Canberra, Australia

PHD ASTROPHYSICS

2019 - 2024

- Thesis title: *Star formation in different environments*
- Advisors: Prof Mark R Krumholz, A/Prof Christoph Federrath, A/Prof Stella Offner, Dr James E Dale

University of Hertfordshire

Hatfield, UK

MSc (BY RESEARCH) ASTROPHYSICS

2016 - 2017

- Thesis title: *Finding close encounters: Toward a consensus on the influence of the stellar flybys on the Solar System over 10 million years*
- Advisors: Dr James L Collett, Prof Hugh Jones, Dr Fabo Feng

University of Hertfordshire

Hatfield, UK

BENG AEROSPACE ENGINEERING WITH SPACE TECHNOLOGY

2013 - 2016

- Result: First class (Hons)
- Honours thesis: *A study of spacecraft motion for an asteroid encounter*
- Advisor: Dr. James L Collett

Professional Experience

2024- **Postdoctoral Researcher**, Department of Physics and Astronomy, Iowa State University

2019 **Research Assistant**, School of Physics, Astronomy and Mathematics, University of Hertfordshire

2017-2019 **Visiting Lecturer**, School of Physics, Astronomy and Mathematics, University of Hertfordshire

2015-2016 **Teaching Assistant**, School of Engineering and Technology, University of Hertfordshire

Publications

PEER REVIEWED

Tanvir, T. and Krumholz, M.R. The metallicity dependence of the stellar initial mass function. *Monthly Notices of the Royal Astronomical Society*, (<https://doi.org/10.1093/mnras/stad3581>)

Tanvir, T.S., Krumholz, M.R. and Federrath, C. (2022) Environmental variation of the low-mass IMF. *Monthly Notices of the Royal Astronomical Society*, 516(4), pp. 5712–5725.

Tanvir, T. and Dale, J. (2021) Collision between molecular clouds – III: the effects of cloud initial density profile on head-on collisions. *Monthly Notices of the Royal Astronomical Society*, 506(1), pp.824–838.

Tanvir, T. and Dale, J. (2020) Collision between molecular clouds – I. The effect of the cloud virial ratio in head-on collisions. *Monthly Notices of the Royal Astronomical Society*, 494(1), pp.246–258.

Tanvir, T. and Grudić, M.Y. Collision between molecular clouds IV: The role of feedback and magnetic field in head on collisions. submitted to OJA

Errmann, R., Cook, N., Anglada-Escudé, G., Sithajan, S., Mkrtichian, D., Semenko, E., Martin, W., **Tanvir, T.**, Feng, F., Collett, J. and Jones, H. (2020) HiFLEx—A Highly Flexible Package to Reduce Cross-dispersed Echelle Spectra. *Publications of the Astronomical Society of the Pacific*, 132(1012), p.064504.

Sofue, Y., Oka, T., Longmore, S. N., Walker, D., Ginsburg, A., Henshaw, J. D., Bally, J., Barnes, A. T., Battersby, C., Colzi, L., Ho, P., Jimenez-Serra, I., Diederik Kruijssen, J. M., Mills, E., Petkova, M. A., Sormani, M. C., Wallace, J., Armijos-Abenda no, J., Dutkowska, K. M., Enokiya, R., Fukui, Y., Garc'ia, P., Guzman, A., Henkel, C., Hsieh, P.-Y., Hu, Y., Immer, K., Jeff, D., Klessen, R. S., Kohno, K., Krumholz, M. R., Lipman, D., Morris, M. R., Nogueras-Lara, F., Nonhebel, M., Ott, J., Pineda, J. E., Mart'in, S., Requena-Torres, M. A., Rivilla, V. M., Riquelme-Vasquez, D., S'anchez-Monge, 'A., Santa-Maria, M. G.,

Smith, H. A., **Tanvir, T. S.**, Tolls, V., and Wang, Q. D. The Galactic Center arms inferred from the ALMA CMZ Exploration Survey (ACES), Publications of the Astronomical Society of Japan, Volume 77, Issue 4, August 2025, Pages 687–706

NON PEER REVIEWED

Feng F., Jones H. R. A., **Tanvir T.** (2017) A Catalogue of Close Encounter Pairs, preprint, (arXiv:1707.05277)

Awards, Fellowships, & Grants

2025	AAS travel grant , American Astronomical Society	\$ 1,800
2023	RSAA Travel Grant , The Australian National Univesity	\$ 4,500
2022	VC Travel Grant , The Australian National Univesity	\$ 1,500
2019	University Research Scholarship , The Australian National University	\$ 180,000
2019	ANU PhD Scholarship , The Australian National University	\$ 28000 (per annum)
2019	RSAA Supplementary Scholarship , Research School of Astronomy and Astrophysics	\$ 3,000 (per annum)
2017	Brian May Scholarship , University of Hertfordshire	£2,000
2016	University Research Scholarship , University of Hertfordshire	£10,000

Presentations

INVITED TALKS

Shahjalal University of Science and Technology, CAM-SUST Summer School on Astrophysics, Bangladesh, 2025

Independent University, Astro Seminar, Bangaldesh, 2025

Iowa State University, Astro Seminar, Iowa, 2025

CONTRIBUTED TALKS AND COLLOQUIA

University of Connecticut, Astro Seminars, 2023

MODEST 23 - star clusters in the post-pandemic era, USA, 2023

Star formation in different environments, Vietnam, 2022

University of Washington, Astro Lunch Talk, 2022

University of California, Davis, Astronomy and Cosmology Seminar, 2022

University of California, San Diego, Astrophysics Seminar, 2022

Massachusetts Institute of Technology, Astro Lunch Talk ,2022

University of Wisconsin, Madison, Monday Science Seminar, 2022

POSTER PRESENTATIONS

The Astrophysical Frontiers in the Next Decade and Beyond: Planets, Galaxies, Black Holes, the Transient Universe meeting, A Study of Collisions Between Molecular Clouds., USA, 2018

Protostars and Planets VII, Environmental variations of the low-mass IMF., Japan, 2023

Mentoring

2024-	Quinn Gault , Undergraduate Research Student, Iowa State University	Ames, Iowa, USA
2025-	Tanmoy Bhoumik , Undergraduate Research Student, Shahjalal University of Science and Technology	Sylhet, Bangladesh

Outreach and Service

2022-2023 **RSAA Education Committee**, Committee Member
2019-2020 **RSAA Seminars Committee**, Committee Member
2015-16 **Outreach Co-ordinator**, Bayfordbury Observatory, University of Hertfordshire

References

Prof. Mark R. Krumholz

Australian National University

E-mail: mark.krumholz@anu.edu.au

A/Prof. Christoph Federrath

Australian National University

E-mail: christoph.federrath@anu.edu.au

Michael Y. Grudić

Flatiron Institute

E-mail: mgrudic@flatironinstitute.org