

# Shyam Harimohan Menon

Mount Stromlo Observatory  
Australian National University  
Australia

✉ [shyam.menon@anu.edu.au](mailto:shyam.menon@anu.edu.au)  
🌐 <https://shm-1996.github.io>

🔗 [shm-1996](#)

🆔 [0000-0001-5944-291X](#)

## Education & Research Experience

- Oct. 2019 – **Doctor of Philosophy, Astronomy & Astrophysics**,  
April 2023 Research School of Astronomy & Astrophysics, Australian National University,  
(expected) Canberra, Australia  
Thesis title: Impacts of Stellar Feedback on Star Formation  
Advisors: A/Prof. Christoph Federrath & Prof. Mark Krumholz
- Aug. 2014 – **Integrated Bachelor and Master of Technology (Hons.), Engineering Physics**,  
May 2019 Department of Physics, Indian Institute of Technology (BHU),  
Varanasi, India  
Thesis title: [HI Fragmentation in the Turbulent Interstellar Medium](#)  
Advisor: A/Prof. Prasun Dutta
- May 2018 – **Summer Research Scholar**,  
August 2019 University of Tübingen,  
Tübingen, Germany  
Project title: Impact of ionising radiation on the turbulent ISM  
Advisor: Dr. Rolf Kuiper
- May 2017 – **MITACS Globalink Summer Internship**,  
August 2017 University of Western Ontario,  
London, Canada  
Project title: Numerical Magneto-hydrodynamic simulations with the Athena code  
Advisor: Prof. Shantanu Basu

## Honors & Grants

- Oct 2021 ANU Olin J Eggen Research Award (\$2500 AUD),  
*Awarded to a PhD student for excellence in research in a given year*
- March 2022 RSAA Travel Grant (\$7000 AUD)
- Oct 2019 ANU PhD Scholarship (\$29000 AUD p.a.)
- Oct 2019 ANU RSAA Supplementary Research Scholarship (\$ 2500 AUD p.a.)
- August 2018 Graduate Aptitude Test in Engineering (GATE) Postgraduate Scholarship
- May 2018 Eberhard Karls Universität Tübingen Summer Research Stipend
- May 2017 Mitacs Globalink Research Internship Award
- April 2013 Kishore Vaigyanik Protsahan Yojana (KVPY) Scholarship

## Teaching and Mentorship

- Feb 2022 – **Teaching Assistant, ASTR 1003 – Astronomy & Space**,  
present *Respond to student queries on the course forum and assist in tutorials*
- Dec 2021 – **Mentor: Hank Hua (ANU undergraduate student)**,  
Feb 2022 *Project title: Effects of spiral arms on the Two Point Correlation Function*

- March 2021 – **Mentor, McNamara-Saunders Astronomical Teaching Telescopes Project**,  
present *Mentored a grade 10 high school student on a project to measure the period of the I-Carinae Cepheid-variable star. Currently working with a second student on exploring galaxy morphology with photometry.*
- Aug 2018 – **Teaching Assistant, PHY 1002 – Introduction to Engineering Electromagnetics**,  
Dec 2018 *Duties involved one tutorial session per week and assistance in preparing tutorials for this undergraduate course*
- Jan 2018 – **Teaching Assistant, PHY 304 – Computational Physics**,  
May 2018 *Duties involved one laboratory session per week, assisting students in implementing numerical methods and recipes taught in theory classes.*
- March 2022 – **Tutor, Canberra Tutors – High School Mathematics and Physics**,  
present *Conduct private tutorial sessions for grade 11 & 12 students for their physics and mathematics coursework..*

## --- Synergistic Activities

- May 2022 – **Member, PHANGS Collaboration**,  
present *Working with the PHANGS collaboration on quantifying how star formation is distributed in galaxies.*
- Feb 2022 – **Chair, Seminars Committee, RSAA**,  
present *Heading the seminars team; responsible for organising, hosting and inviting speakers for colloquia*
- July 2021 – **Reviewer, Monthly Notices of the Royal Astronomical Society (MNRAS)**,  
present *Total Reviewed Papers: 2*
- Sept 2020 – **Member of Seminars Committee, RSAA**,  
Feb 2022 *Hosted >30 external colloquia and seminars at RSAA*
- Jan 2020–present **Member, Astronomical Society of Australia (ASA)**,  
*Active student member of the ASA, and its theoretical astrophysics working group ANITA.*
- Jan 2020–present **Student Representative, Work, Health & Safety Committee, RSAA**,  
*Formally representing the student cohort in ensuring a safe and healthy workplace.*
- Sep 2021 – **Standard Mental Health First Aider (MHFA)**,  
present *Accredited MHFA by Mental Health First Aid Australia*
- Aug 2017 – **Organising Core Team Member, Jigyasa 2017**,  
Nov 2017 *Core team member in organising Jigyasa, the annual physics convention held at the Department of Physics, IIT(BHU) Varanasi*

## --- Publications

**7 publications: 6 first-author, 1 second-author**

1. [Outflows Driven by Direct and Reprocessed Radiation Pressure in Massive Star Clusters](#)  
**Menon, S.H.**, Federrath, C. & Krumholz, M.R, 2022, [Submitted to MNRAS](#)
2. [Infrared Radiation Feedback Does Not Regulate Star Cluster Formation or Drive Winds](#) [3 Citations]  
**Menon, S.H.**, Federrath, C. & Krumholz, M.R, 2022, [MNRAS](#), in press
3. [VETAM: A scheme for radiation hydrodynamics with adaptive mesh refinement using the variable Eddington tensor method](#) [5 Citations]  
**Menon, S.H.**, Federrath, C., Krumholz, M.R, Kuiper, R., Wibking, B.D, Jung, M., 2022, [MNRAS](#), 512, 401

4. [First extragalactic measurement of the turbulence driving parameter: ALMA observations of the star-forming region N159E in the Large Magellanic Cloud \[7 Citations\]](#)  
Sharda, P., **Menon, S.H.**, Federrath, C., Krumholz, M. R., Beattie, J. R., Jameson, K. E., Tokuda, K., Burkhart, B., Crocker, R. M., Law, C. J., Seta, A., Gaetz, T. J., Pingel, N. M., Seitzzahl, I. R., Sano, H., and Fukui, Y., **2022, MNRAS, 509, 2180**
5. [The dependence of the hierarchical distribution of star clusters on galactic environment \[4 Citations\]](#)  
**Menon, S.H.**, Grasha, K., Elmegreen, B.G., Federrath, C., Krumholz, M.R., Calzetti, D., Sánchez, N., Linden, S.T., Adamo, A., Messa, M., Cook, D.O., Dale, D.A., Grebel, E.K., Fumagalli, M., Sabbi, E., Johnson, K.E., Smith, L.J., Kennicutt, R.C., **2021, MNRAS, 507, 5542**
6. [On the compressive nature of turbulence driven by ionizing feedback in the pillars of the Carina Nebula \[13 Citations\]](#)  
**Menon, S.H.**, Federrath, C., Klaassen, P., Kuiper, R., Reiter, M., **2021, MNRAS, 500, 1721**
7. [On the turbulence driving mode of expanding H II regions \[13 Citations\]](#)  
**Menon, S.H.**, Federrath, C., Kuiper, R., **2020, MNRAS, 493, 4643**

## --- Seminars and Conference Talks

- Nov. 2022 **CIERA Theory Seminar, Northwestern University**
- Nov. 2022 **RandoAstro Seminar, Canadian Institute of Theoretical Astrophysics**
- Oct. 2022 **Galread Seminar, Princeton University**
- Oct. 2022 **CCAPP Seminar, Ohio State University**
- Oct. 2022 **Cosmology Seminar, MPA Garching**
- Aug. 2022 **Contributed Talk - Star Formation in Different Environments, Quy Nhon, Vietnam**
- July 2022 **Contributed Talk - A Holistic View of Stellar Feedback and Galaxy Evolution, Ascona**
- July 2022 **Planet and Star Formation (PSF) Seminar - Max-Planck-Institut for Astronomy, Heidelberg**
- June 2022 **Seminar - Centre de Recherche Astrophysique de Lyon (CRAL)**
- June 2022 **Star Formation Seminar - CEA, Saclay**
- June 2022 **Poster - From Stars to Galaxies II, Gothenburg**
- June 2022 **Contributed Talk - NBIA Workshop on Radiation Transfer in Astrophysics, Copenhagen**
- Dec. 2021 **Invited Colloquium, Indian Institute of Astrophysics, Bangalore**
- Nov. 2021 **Contributed Talk, IAU Symposium 362 - The Predictive Power of Computational Astrophysics**
- May 2021 **Contributed Talk, ISM 2021, Beirut - Structure, Characteristic Scales, and Star Formation**
- Feb. 2021 **Contributed Talk, Australian National Institute for Theoretical Astrophysics science workshop**
- Sept. 2020 **Contributed Talk, Annual meeting of the Astronomische Gesellschaft, Germany**
- March 2020 **Invited Talk, Modelling High-Mass Stellar Feedback Workshop, Tübingen, Germany**
- Jan. 2020 **Australian National Institute for Theoretical Astrophysics science workshop**

## Relevant Skills

**Languages:**, English, Malayalam, Tamil, Hindi, Sanskrit

**Programming Experience:**, C, C++, Fortran, Python, Mathematica, Bash

**Codes/Softwares:**, FLASH, PLUTO, PETSc, Hypre, Athena, yt, CUDA

**Voluntary Training:**, Mental Health First Aid, Understanding and Responding to Sexual Violence