

PROFILE

Name	Dr VARNANA.M. KUMAR
Position & Affiliation	Assistant Professor, Department of Physics (Basic science)
Areas of Interest	<ul style="list-style-type: none">• Planetary Geophysics• Astrophysics / Extrasolar planets• Quantum computing• Electronics• C ,C++ programming
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Professional Webpage (if any)	(7) Varnana Kumar

Educational Qualifications:

- Ph.D. in Physics, University of Kerala(2020)
- MPhil in Physics, University of Kerala (2014)
- B.Ed. in Physical Science, University of Kerala (2013)
- M.Sc. in Physics (specialization in Electronics) University of Kerala (2011)
- B.Sc. in Physics, University of Kerala(2009)

• Areas of Research

- Planetary Geophysics
- Astrophysics / Extrasolar planets
- Geothermal energy

Brief Profile: (write about yourself)

Dr. Varnana M Kumar has completed her PhD from University of Kerala in the year 2020. She has specialized in the area of planetary geology and exoplanets. After her Doctoral degree, she taught in prestigious institutions and has teaching and academic experience of around 3 years. She has three international papers, one national paper, one international book chapter in her credit. In addition she published her research work in arxiv/preprint repository with doi numbers. One of her arxiv paper entitled Cessation of volcanism in Earth –Possibilities in the near geological future selected as the best of the Physics arxiv paper from MIT Technology Review in August 2018. She made paper presentations in various national and international conferences. She had guided students for doing projects at both undergraduate and post graduate levels.

Awards/Achievements/Others:

- Reviewer in the 7th International Conference on Physics, Mathematics and Statistics ICPMS 2024
- One of the preprint paper “Inference of Dynamic Geophysical Conditions and Probability of Advanced Life in Potentially Habitable Rocky ExoPlanets” was nominated for the 2023 Most popular preprint award.
- Participation in the International Astronomical Union (IAU) Symposium 340 held in Jaipur, India in 2018, with IAU Grant.
- Participation in the Young Astronomers Meet (YAM 209) held at Kodaikanal Solar Observatory in 2019, with IIA Grant.
- Cleared State Eligibility Test in Physics

Courses Taught:

Quantum Mechanics, solid state physics, spectroscopy, nuclear physics, mathematical physics ,engineering physics etc.

Publications/Patents:

Publications

1. **Varnana M Kumar**, Girish, Thara N Sathyan, Haritha, Gopakumar.,(2024), Super flares in M stars and associated characteristics of active regions and magnetic fields. Journal of the Proceedings of the International Astronomical Union, S(365), doi:10.1017/S1743921323004945 (Scopus indexed)

2. **Varnana M Kumar.**, Sathyan, T., Girish, T., Eapen, P., Longhinos, B., & Binoy, J. (2022). Inference of Magnetic Fields and Space Weather Hazards of Rocky Extrasolar Planets from a Dynamical Geophysical Model. Journal of the Proceedings of the International Astronomical Union, 16(S362), 175 - 176. doi:10.1017/S174392132200148X. (Scopus indexed)

3. **Varnana M Kumar.**, Thara N. Sathyan, N. G. Nisha, S. Aranya, and T. E. Girish. Inferring Stellar Activity Variations near Habitable Extrasolar Planets using Dynamical Effects. Journal of the Proceedings of the International Astronomical Union, IAU 340, (2018): pp 297-298 (ISSN 2279-0543, Scopus)

4. **Varnana M Kumar.**, Girish, T. E., Eapen, P. E., Sathyan, T. N., Longhinos, B., Sony, K. S., & Binoy, J. (2023). Inference of Dynamic Geophysical Conditions and Probability of Advanced Life in Potentially Habitable Rocky ExoPlanets. doi:10.20944/preprints202303.0327.v1

5. **Varnana M. Kumar.**, Girish, T. E., Longhinos, B., Satyan, T., and Anjana, A.V. Panicker, Cessation of Volcanism on Earth-Possibilities in near geological future. arXiv preprint arXiv:1808.01333, (2018)., selected as best of the Physics ariv paper (week ending August 18, 2018 of MIT Technology Review.

6. **Varnana M Kumar.**, Girish, T. E., Longhinos, B., Satyan, T., and Anjana, A.V.

	<p>Panicker, On The Geological Time Evolution of Volcanism in the Inner Solar System. arXiv preprint arXiv:2005.13200.</p> <p>7.Varnana M Kumar., Girish, T. E., Sathyan, T., Longhinos, B., & Panicker, A. A.(2021). Evidence for Critical Internal heat values during Significant Geophysical Transitions in the Inner Solar System Planetary bodies in association with Volcanism. arXiv preprint arXiv:2105.05676.</p>
Patents	<i>Nil</i>
Book/Book Chapters	<p>Girish, T. E., Thara N. Sathyan, and Varnana M. Kumar. "Technological relevance and photovoltaic production potential of high-quality silica deposits on Mars." Photovoltaics for Space. Elsevier, 2023. 433-441.</p>