

Dr. Mridula N

Scientist/Engineer – SE

Phone: +91-471-2563884

Email: n_mridula[at]vssc[dot]gov[dot]in

Research Area: Ionospheric plasma layering processes

To investigate the response of Upper atmospheric/Ionospheric layers to diverse solar, magnetospheric and geophysical conditions using ground based, space based and rocket based observations as well as simulations.

✓ **Academic Qualification**

Degree	Year	Details
Ph.D.	2017	Physics, University of Kerala.
M. Sc.	2007	Physics, <i>University of Calicut</i>
CSIR-JRF NET	2006	

✓ **Professional Background**

Designation	Duration	Institution
Scientist/Engineer	Feb 2008– Present	Space Physics Laboratory, VSSC, ISRO, India
Research scholar	Mar2007–Feb 2008	CUSAT

✓ **Awards/Honors/Recognitions/Aclamations**

- ILWS (International Living With Star) full travel grant to attend Heliospheric Summer School at Boulder, Colorado, USA, 2019.
 - BUTI Young Scientist Award 2018: Awarded by BUTI Foundation during the 33rd National Symposium on Plasma Science and Technology, Delhi 2018.
 - PSSI Award 2014 (Plasma Science Society of India award) Awarded for the best poster in 29th National symposium on plasma science and technology, Plasma 2014 held at Kottayam during Dec 8-11,2014
 - Best Library user of the year 2015, Vikram Sarabhai Space Centre library
 - CSIR-Research Fellowship, 2006 Included in the top 20% of passed candidates for CSIR JRF-NET (Council for Scientific and Industrial Research) - Junior Research Fellowship- National Eligibility Test) 2006
 - M.Sc Physics-First Rank, University of Calicut
 - B.Sc Physics- First Rank, University of Calicut (99.5%)
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2021

- **Mridula N.**, G. Manju, On the seasonal evolution of the diurnal pattern of the longitudinal structures in MAVEN NGIMS derived CO₂ densities over Martian upper atmosphere, *Journal of Atmospheric and Solar–Terrestrial Physics* 212 (2021) 105508, <https://doi.org/10.1016/j.jastp.2020.105508>
- Manju, G., **Mridula N.**, First estimations of gravity wave potential energy in the Martian thermosphere: an analysis using MAVEN NGIMS data, *MNRAS* **501**, 1072–1077 [doi:10.1093/mnras/staa3491](https://doi.org/10.1093/mnras/staa3491), 2021.

2020

- **Mridula N.**, Tarun Kumar Pant, G. Manju, On the variability of the Equatorial Ionization Anomaly Trough over Indian region: A novel analysis using Beacon TEC measurements, *Advances in Space Research*, [/doi.org/10.1016/j.asr.2020.04.040](https://doi.org/10.1016/j.asr.2020.04.040), 2020,
- Manju, G., Tarun K. Pant, P. Sreelatha, Santhosh J. Nalluveetil, P. Pradeep Kumar, Nirbhay Kumar Upadhyay, Md. Mosarraf Hossain, Neha Naik, Vipin Kumar Yadav, Rosmy John, R. Sajeev, Jothi Ramalingam, Philip George, Amarnath Nandi, **N. Mridula**, Aswathy R. P. Janmejay Jaiswal Rana, Snehil Srivastava and Satheesh Thampi, , New outlook on lunar near surface plasma environment from Chandrayaan-2 lunar lander platform: RAMBHA_LP payload perspective, *Current Science*, 118(3), 383, 2020.

2019

- **Mridula N.**, T.K. Pant, Manju G, K V Subrahmanyam and K.K. Kumar, On the role of F3 layers as well as solar flux in modulating the topside ionization over Indian region: an analysis, *J. Atmos. Terr.Phys*, <http://dx.doi.org/10.1016/j.jastp.2019.04.004>, 2019
- Manju, G., Tarun K. Pant, **Mridula N.**, Aswathy R. P., P. Sreelatha, Rosmy John, Satheesh Thampi R., Aneesh. N. and Abhishek J. K., In-situ observations of rocket burn induced modulations of the top side ionosphere using the IDEA payload on-board the unique orbiting experimental platform (PS4) of the Indian Polar Orbiting Satellite Launch Vehicle mission, *J. Atmos. Sol. Terr. Phys. Journal of Atmospheric and Solar–Terrestrial Physics*, [doi: https://doi.org/10.1016/j.jastp.2020.105203](https://doi.org/10.1016/j.jastp.2020.105203), 2019

2018

- **Mridula N.** and Tarun Kumar Pant, The generation of post noon F3 layers over the dip equatorial location of Thiruvananthapuram- A new perspective, *J. Atmos. Terr.Phys*, 170, 55-63, <https://doi.org/10.1016/j.jastp.2018.02.008>, 2018.
- **Mridula N.**, Tarun Kumar Pant and Ajesh A, On the QBO modulation in the frequency of occurrence of pre noon F3 layers over the dip equatorial location of Thiruvananthapuram, *J. Atmos. Terr.Phys*, 179, 114-119, <https://doi.org/10.1016/j.jastp.2018.07.004>, 2018.
- Ajesh A, T K Pant, C Vineeth, **N Mridula**, K Kishore Kumar, Vertical Coupling between mesopause region and sporadic E layer during Equatorial and Counter Electrojet events- a case study, *Advances in space research*, <http://dx.doi.org/10.1016/j.asr.2018.07.001>, 2018.

2017

- **Mridula N.**, Tarun Kumar Pant., on the role of horizontal wind shears in the generation of F0.5 layers over the dip equatorial location of Thiruvananthapuram: A numerical simulation study, Journal of Atmospheric and Solar Terrestrial Physics, <http://dx.doi:10.1016/j.jastp.2017.02.005>, 2017.
- Scientific report: **Mridula N** and Tarun Kumar Pant, Mean and Extreme Bounds of Atmospheric Temperature for the Altitude of 60 km to 1000 km Over SHAR Region, SPL- SR-01-2017, June 2017.

2016

- Vineeth C., **N. Mridula**, P. Muralikrishna , K.K. Kumar, T.K. Pant, First observational evidence for the connection between the meteoric activity and occurrence of equatorial counter electrojet, Journal of atmosphere and solar terrestrial physics, <http://dx.doi.org/10.1016/j.jastp.2016.07.007>, 2016.

2015

- **Mridula N.** and Tarun Kumar Pant, On the possible role of zonal dynamics in the formation and evolution of F3 layers over equator, Journal of atmosphere and solar terrestrial physics, <http://dx.doi: 10.1016/j.jastp.2015.09.019>, 2015

2014

- **Mridula N.**, Tarun Kumar pant, C.Vineeth, K.Kishore Kumar ,Features of the occurrence of the additional stratification on the bottom-side F region over the equatorial location of Trivandrum, Advances in space research, <http://dx.doi.org/10.1016/j.asr.2013.12.036>, 2014.

2013

- Kumar P N, N Rasool, K Madhu Krishna, A.D Sharma, **N. Mridula**, Tarun Kumar Pant, P.Sreelatha,J.Rosmi,Santosh koli, Praveen Kumar and R Sharma, Ionospheric variability over low and equatorial latitude regions over India-A study using RaBIT onboard YOUTHSAT, Indian Jopurnal of Radio and Space Physics,vol 42,2013,pages 136-142, 2013.

2012

- Pant T K, P Sreelatha, **N. Mridula**, S Trivedi, R M Das, S Koli, R Sharma, J Girija, Arun Alex, K K Mukundan, S B Shukla, P Purushottaman, J N Santosh, Biju Thomas,M Srikant, RSridharan, K Krishnamoorthy, Ratan Bisht, D V A Raghavamurthy, M P T Chamy & J D Rao, Radio Beacon for Ionospheric Tomography (RaBIT) onboard YOUTHSAT: Preliminary results,Ind. J. Radio Space Phys., 41 (2), 162-168, 2012.

2011

- Manju G., R. Sridharan , P. Sreelatha, S. Ravindran, M. Haridas, T. K. Pant, P.P.Kumar, S.Thampi, N. Naik, **N. Mridula**, L. Jose and S. G. Sumod, A Novel probe for in-situ Electron density and Neutral Wind (ENWi) measurements in the near Earth space, J., Atmos. Sol.Terr. Phys, 2011.
- **Mridula. N.**, G. Manju, Tarun Kumar Pant, S. Ravindran, L. Jose, and S. Alex, On the significant impact of the moderate geomagnetic disturbance of March 2008 on the Equatorial Ionization Anomaly region over Indian longitudes, J. Geophys .Res.,<http://dx.doi:0.1029/2011JA016615>, 2011.[This study was published in Journal of Geophysical Research JGR(USA) and was highlighted as an important study by Vertical news USA, an agency which monitors and rates atmospheric studies].

डॉ. मृदुला एन
वैज्ञानिक/इंजीनियर एस ई
फ़ोन :+ ९१-४७१-२५६३८८४
ईमेल : n_mridula[at]vssc[dot]gov[dot]in

अनुसंधान क्षेत्र: जमीन आधारित, अंतरिक्ष आधारित और रॉकेट आधारित अवलोकनों के साथ-साथ सिमुलेशन का उपयोग करके विविध सौर, चुंबकमंडल और भूभौतिकीय स्थितियों के लिए ऊपरी वायुमंडलीय/आयनोस्फेरिक परतों की प्रतिक्रिया की जांच करना।

शैक्षणिक योग्यता

डिग्री	वर्ष	विवरण
पी एचडी	२०१९	भौतिक विज्ञान; केरल विश्वविद्यालय.
एम एससी	२००७	भौतिक विज्ञान, कालीकट विश्वविद्यालय.
सीएसआईआर-जेआरएफ नेट	२००६	

प्रोफ़ेशनल

पद	समयांतराल	संस्थान
वैज्ञानिक/ इंजीनियर	फरवरी २००८- वर्तमान	अंतरिक्ष भौतिकी प्रयोगशाला, वीएसएससी, इसरो, भारत
रिसर्च स्कॉलर	Mar २००७ – फरवरी २००८	CUSAT

पुरस्कार/सम्मान/स्वीकरण/अभिनंदन

- ILWS (इंटरनेशनल लिविंग विद स्टार) बोल्डर, कोलोराडो, यूएसए, 2019 में हेलिओस्फेरिक समर स्कूल में भाग लेने के लिए पूर्ण यात्रा अनुदान।
- BUTI यंग साइंटिस्ट अवार्ड 2018: BUTI फाउंडेशन द्वारा प्लाज्मा साइंस एंड टेक्नोलॉजी, दिल्ली 2018 पर 33वें राष्ट्रीय संगोष्ठी के दौरान सम्मानित किया गया।
- पीएसएसआई पुरस्कार 2014 (प्लाज्मा साइंस सोसाइटी ऑफ इंडिया अवार्ड) कोट्टायम में दिसंबर 8-11, 2014 प्लाज्मा विज्ञान और प्रौद्योगिकी के दौरान आयोजित, प्लाज्मा 2014 पर 29वें राष्ट्रीय संगोष्ठी में श्रेष्ठ पोस्टर के लिए पुरस्कार.
- वर्ष 2015 का सर्वश्रेष्ठ पुस्तकालय उपयोगकर्ता, विक्रम साराभाई अंतरिक्ष केंद्र पुस्तकालय.
- सीएसआईआर-रिसर्च फेलोशिप, 2006 सीएसआईआर जेआरएफ-नेट (वैज्ञानिक और औद्योगिक अनुसंधान परिषद) के लिए उत्तीर्ण उम्मीदवारों के शीर्ष 20% में शामिल .
- एमएससी भौतिक विज्ञान -प्रथम रैंक, कालीकट विश्वविद्यालय
- बी.एससी भौतिक विज्ञान - प्रथम रैंक, कालीकट विश्वविद्यालय (99.5%)

2021

- [Mridula N.](#), G. Manju, On the seasonal evolution of the diurnal pattern of the longitudinal structures in MAVEN NGIMS derived CO₂ densities over Martian upper atmosphere, *Journal of Atmospheric and Solar–Terrestrial Physics* 212 (2021) 105508, <https://doi.org/10.1016/j.jastp.2020.105508>
- Manju, G., [Mridula N.](#), First estimations of gravity wave potential energy in the Martian thermosphere: an analysis using MAVEN NGIMS data, *MNRAS* **501**, 1072–1077 [doi:10.1093/mnras/staa3491](https://doi.org/10.1093/mnras/staa3491), 2021.

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- Manju, G., Tarun K. Pant, P. Sreelatha, Santhosh J. Nalluveetil, P. Pradeep Kumar, Nirbhay Kumar Upadhyay, Md. Mosarraf Hossain, Neha Naik, Vipin Kumar Yadav, Rosmy John, R. Sajeev, Jothi Ramalingam, Philip George, Amarnath Nandi, [N. Mridula](#), Aswathy R. P. Janmejay Jaiswal Rana, Snehil Srivastava and Satheesh Thampi, , New outlook on lunar near surface plasma environment from Chandrayaan-2 lunar lander platform: RAMBHA_LP payload perspective, *Current Science*, 118(3), 383, 2020.

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- [Mridula N.](#), T.K. Pant, Manju G, K V Subrahmanyam and K.K. Kumar, On the role of F3 layers as well as solar flux in modulating the topside ionization over Indian region: an analysis, *J. Atmos. Terr.Phys*, <http://dx.doi.org/10.1016/j.jastp.2019.04.004>, 2019
- Manju, G., Tarun K. Pant, [Mridula N.](#), Aswathy R. P., P. Sreelatha, Rosmy John, Satheesh Thampi R., Aneesh. N. and Abhishek J. K., In-situ observations of rocket burn induced modulations of the top side ionosphere using the IDEA payload on-board the unique orbiting experimental platform (PS4) of the Indian Polar Orbiting Satellite Launch Vehicle mission, *J. Atmos. Sol. Terr. Phys. Journal of Atmospheric and Solar–Terrestrial Physics*, [doi: https://doi.org/10.1016/j.jastp.2020.105203](https://doi.org/10.1016/j.jastp.2020.105203), 2019

2018

- [Mridula N.](#) and Tarun Kumar Pant, The generation of post noon F3 layers over the dip equatorial location of Thiruvananthapuram- A new perspective, *J. Atmos. Terr.Phys*, 170, 55-63, <https://doi.org/10.1016/j.jastp.2018.02.008>, 2018.
- [Mridula N.](#), Tarun Kumar Pant and Ajesh A, On the QBO modulation in the frequency of occurrence of pre noon F3 layers over the dip equatorial location of Thiruvananthapuram, *J. Atmos. Terr.Phys*, 179, 114-119, <https://doi.org/10.1016/j.jastp.2018.07.004>, 2018.
- Ajesh A, T K Pant, C Vineeth, [N Mridula](#), K Kishore Kumar, Vertical Coupling between mesopause region and sporadic E layer during Equatorial and Counter Electrojet events- a case study, *Advances in space research*, <http://dx.doi.org/10.1016/j.asr.2018.07.001>, 2018.

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- **Mridula N.**, Tarun Kumar Pant., on the role of horizontal wind shears in the generation of F0.5 layers over the dip equatorial location of Thiruvananthapuram: A numerical simulation study, Journal of Atmospheric and Solar Terrestrial Physics, <http://dx.doi:10.1016/j.jastp.2017.02.005>, 2017.

- Scientific report: **Mridula N** and Tarun Kumar Pant, Mean and Extreme Bounds of Atmospheric Temperature for the Altitude of 60 km to 1000 km Over SHAR Region, SPL- SR-01-2017, June 2017.

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- Vineeth C., **N. Mridula**, P. Muralikrishna , K.K. Kumar, T.K. Pant, First observational evidence for the connection between the meteoric activity and occurrence of equatorial counter electrojet, Journal of atmosphere and solar terrestrial physics, <http://dx.doi.org/10.1016/j.jastp.2016.07.007>, 2016.

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- Kumar P N, N Rasool, K Madhu Krishna, A.D Sharma, **N. Mridula**, Tarun Kumar Pant, P.Sreelatha,J.Rosmi,Santosh koli, Praveen Kumar and R Sharma, Ionospheric variability over low and equatorial latitude regions over India-A study using RaBIT onboard YOUTHSAT, Indian Jopurnal of Radio and Space Physics,vol 42,2013,pages 136-142, 2013.

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- **Mridula N.**, G. Manju, Tarun Kumar Pant, S. Ravindran, L. Jose, and S. Alex, On the significant impact of the moderate geomagnetic disturbance of March 2008 on the Equatorial Ionization Anomaly region over Indian longitudes, J. Geophys .Res.,<http://dx.doi:0.1029/2011JA016615>, 2011.[This study was published in Journal of Geophysical Research JGR(USA) and was highlighted as an important study by Vertical news USA, an agency which monitors and rates atmospheric studies].