

Name: Dr. Mosarraf Hossain Md.

Designation: Scientist/Engineer 'SD'

Address: Space Physics Laboratory,  
Vikram Sarabhai Space Centre, ISRO PO.,  
Trivandrum-695022

Phone: 0471-2563101, 2563563

E-mail: [mosarraf\\_hossain\[at\]vssc\[dot\]gov\[dot\]in](mailto:mosarraf_hossain@vssc.gov.in),

***Research Area & Research Interests:***

Optical Aeronomy, Interference Spectroscopy, Grating Spectrometry,  
Interferometry, Digital Holography, Laser Applications

- Optical Instrumentations and payload developments for Aeronomy/  
ionospheric studies of planetary atmospheres.
- Aeronomy of Planetary atmospheres using airglow emissions (day and  
night time), and other ground/satellite based data.

***Academic Qualifications(degree onwards):***

B.Sc. (Hons. In Physics), Burdwan University, West Bengal, 1995

M.Sc. (Physics), Visva-Bharati University, Santiniketan, West Bengal, 1998.

M. Tech (Applied Optics), Indian Institute of Technology Delhi, 2000.

PhD (Optical Instrumentation: Digital Holography), Indian Institute of  
Technology Delhi, 2008

Thesis Title: "Applications of Digital Holography in Optical Metrology and  
Information Reduction"

***Professional Background:***

- Scientist SD, Space Physics Laboratory, VSSC (July 2011-Present)
- Scientist SC, Space Physics Laboratory, VSSC (March 2006–June 2011)
- Senior Research Fellow, IIT Delhi (December, 2002-March, 2006)
- Software Engineer, Frontier Information Technology Ltd., Hyderabad (May,  
2001- June, 2002)

- Project Associate, IIT Delhi (February, 2001-May, 2001)

**Projects:** Involved in the following projects:

(1) Project manager (Payload Science Data), **Langmuir Probe** Experiment, Radio Anatomy of Moon Bound Hypersensitive ionosphere (RAMBHA) Payload onboard Chandrayaan-2 Lander.

(2) Project manager (Magnetometer), **InSWIM** - Indian Network for Space Weather Impact Monitoring.

(4) **SOUREX** (Sounding Rocker Experiment) for thermosphere Ionosphere investigations.

### **Awards Honors & Recognitions**

- Obtained Institute Fellowship while pursuing M.Tech. at IIT Delhi from July 1999 to December 2000.
- Obtained Institute Fellowship while pursuing PhD at IIT Delhi from December 2002 to February 2006.
- Visiting Faculty at Indian Institute of Space Science & Technology (IIST), Trivandrum, 2011 onwards.

### **Membership in Professional Bodies**

- Optical Society of India

### **Professional Responsibilities (National, International; other than routine responsibilities)**

- Visiting Faculty at Indian Institute of Space Science and Technology (IIST), Trivandrum, 2011 onwards.
- Presently member of Doctoral committees for two PhD students at SPL.

### **Research Supervision**

- M. Tech./M. Sc. Project Theses supervised: Six(6)

<b>No</b>	<b>Student Name</b>	<b>Year of completion</b>	<b>University</b>	<b>Title of M Sc. Project Thesis</b>
1	Anila.S.Anand and Amritha Krishnan. K	2009	University of Kerala, Trivandrum	Application of a grating monochromator based photometer for observation of

				daytime sodium airglow.
2	Samiya sharaf S. And Karthy P.	2011	University of Kerala, Trivandrum	Characterization of spectroscopic light sources and study of sodium dayglow using a scanning grating monochromator.
3.	Prashanth V Pradeep	2011	Amrita University, Kollam, Kerala	Study on Aeronomy of Terrestrial Atmosphere over the Magnetic Equator in India.
4.	Bini Mol	2012,	Mahatma Gandhi University, Kerala	Variability of Mesospheric Daytime Airglow measured over Trivandrum Using Photometry and Spectrometry.
5.	Sreehari N	2014	Sarabhai Institute of science & Technology, Trivandrum	Design of SHS for Airglow Emission Measurements.
6.	Neema Maria John	2016		Optical designing of a Spatial Heterodyne Spectrometer for thermospheric night-time airglow measurements.

***Publications (List of Publications to be given)***

***Publications:***

- Peer Reviewed International Journals: 17
- Peer Reviewed National Journals: 1
- National and International Refereed Conference Proceedings: 22

***i. In International Journals (Refereed)***

No.	Author(s)	Year	Title of paper	Complete Reference of Journal
1	D. S. Mehta, S. K. Dubey, <b>Md. Mosarraf Hossain</b> and C. Shakher	2005	Simple multifrequency and phase shifting fringe projection system based on two- wavelength lateral shearing interferometry	Appl. Opt., 44 (35), 7515- 7521.

			for three-dimensional profilometry.	
2	<b>Md. Mosarraf Hossain,</b> D.S.Mehta and C. Shakher	2006	Refractive index determination: An Application of lensless Fourier digital holography.	Opt. Eng. 45 (10), 106203-7.
3	<b>Md. Mosarraf Hossain,</b> G. Sheoran, D. S. Mehta and C. Shakher	2007	Contouring of diffused objects by using digital holography.	Opt. Lasers Eng, 45, 684-689.
4	<b>Md. Mosarraf Hossain,</b> D.S. Mehta and C. Shakher	2008	Information Reduction using lensless Fourier transform digital composite Holography.	Opt. Laser Tech., 40, 120-128.
5	G. Sheoran, <b>Md. Mosarraf Hossain,</b> D. S. Mehta and C. Shakher	2008	Contouring of diffused objects by using lensless Fourier transform digital holography and dual-Index Immersion method.	Intl. J. Strain,44 (5), 357 - 365.
6	<b>Md. Mosarraf Hossain</b> and C. Shakher	2009	Temperature measurement in laminar free convective flow using digital holography.	Appl. Opt. 48(10),1869 1877.
7	C. Vineeth, T. K. Pant, S. Gurubaran, <b>Md. Mosarraf Hossain</b> and R. Sridharan	2010	A comparison of optically measured daytime mesopause temperatures over tropics during solar maximum and minimum periods.	Earth, Plane and Space 62, 1-7, 2010.
8	<b>Md. Mosarraf Hossain,</b> T. K. Pant, C. Vineeth, S. G. Sumod and R. Sridharan	2010	Daytime sodium airglow emission measurements over Trivandrum using a scanning monochromator: first results.	Ann. Geophys. 28, 2071- 2077.
9	T. K. Pant, C. Vineeth, and <b>Md. Mosarraf Hossain</b>	2010	A brief review of Neutral Atmosphere Ionosphere Coupling over the dip Equator.	Asian Journal Physics 19 435442
10	S. G_Sumod, T. K. Pant, C. Vineeth and <b>Md. Mosarraf Hossain</b>	2011	A new insight into the vertical neutral-ion coupling between the mesopause and ionosphere F region	Ann. Geophys. 29, 421-426
11	S. G. Sumod, T. K. Pant, C. Vineeth, and <b>Md. Mosarraf Hossain</b>	2011	Response of Tropical Mesopause to the longest Annular Solar Eclipse of this millennium.	J. Geophys. Res, 116, A06317.
12	S. G. Sumod, T. K. Pant, <b>Md. Mosarraf Hossain,</b> and K.K. Kumar	2012.	Signatures of Sudden Stratospheric Warming on Equatorial Thermosphere-Ionosphere System.	Planet. Space Sci. 63-64, 49-55
13	<b>Md. Mosarraf Hossain,</b> G. Sheoran, V. Kumar and C. Shakher	2012	Contouring of diffused objects using lensless Fourier transform digital moire holography.	Appl. Opt., 51(21), 533 5339.
14	Debadatta Swain, N. V. P. Kiran Kumar, K. Kishore Kumar, <b>Md. Mosarraf Hossain,</b> M. Rajasekhar, and Geetha	2013	Application of Wavelet Denoising for Wind Speed Retrieval from a 2.5 MHz Partial Reflection Radar	Current Trends in Signal Processing, 3, Issue 2, 18,STM Jour

	Ramkumar			
15	<b>Md. Mosarraf Hossain,</b> C. Vineeth S. G. Sumod, T. K. Pant,	2014	Highly varying Daytime Sodium Airglow emissions over an Equatorial Station: A case study based on the measurements using a Grating Monochromator	Earth,Planet and Space, 66:56,.
16	Sumod. S. G, Tarun Kumar Pant, C. Vineeth and <b>Md. Mosarraf Hossain</b>	2014	On the ionospheric and thermospheric response of Solar flare events of January 19, 2005: An investigation using radio and optical techniques	Journal of Geophysical Research, 119 (6), 5040-5059.
17	Sumod. S. G, Tarun Kumar Pant, C. Vineeth and <b>Md. Mosarraf Hossain</b>	2015	Unusual depletion of OI 630.0 nm dayglow and simultaneous mesopause heating during the penetration of interplanetary electric field over dip equator	J. Geophys. Res. (Space Physics), 120

***ii. In National Journals (Refereed)***

1	C. Vineeth, T. K. Pant and <b>Mosarraf Hossain</b>	2012	Enhanced Gravity wave activity over the equatorial MLT Region during Counter Electrojet Events	Ind. J. Radio & Space Phys., 41, 258263
---	--	------	--	---