Faculty Profile:

Name of the Faculty : *Dr. Suman Ray*

Present Position : *State Aided College Teacher* - I,
Dept. of Physics,
Gobardanga Hindu College.

Contact Details : sumanray07@gmail.com

Qualification : M.Sc., Ph.D.

Research Experience : Working in the field of Astrophysics since last 15 years.

SEMINARS / CONFERENCES ATTENDED :

1) Attended **"Exploring the Universe: Near Earth Space Science to Extra-Galactic Astronomy"** from 14th to 17th November, 2018, at S. N. Bose National Centre for Basic Sciences, Kolkata, India, organized by 'S. N. Bose National Centre for Basic Sciences', Kolkata, India.

2) Attended **"Atmospheric Electricity Phenomena and Natural Hazards"** jointly organized by Department of Atmospheric Sciences, University of Calcutta, Kolkata, & Indian Centre for Space Physics, Kolkata, on 5th May, 2017.

3) Attended **"Natural Disaster Phenomena: Contemporary Developments"** organized by Department of Atmospheric Sciences, University of Calcutta, Kolkata, on 26th Feb, 2016

4) Attended **"40th COSPAR Scientific Assembly"** during 2nd to 10th August, 2014, at Moscow State University, Moscow, Russia.

5) Attended **"ISRO Respond Review Meeting"** during 20th to 21st February, 2014 at Physical Research Laboratory (PRL), Ahmedabad, India.

6) Attended **"ISRO Respond Review Meeting"** during 8th to 9th February, 2013 at PRL, Ahmedabad, India.

7) Attended **"39th COSPAR Scientific Assembly"** during July 14-22, 2012, at Narayana Murthy Centre of Excellence, Mysore, India, Local organizer-ISRO.

8) Attended **"Indo-Us workshop on Advancing VLF Science through the Gobal AWESOME network"** during 28th Nov to 1st Dec, 2011 in Goa, India, organized by Indian Institute of Geomagnetism.

9) Attended **"XXX URSI General Assembly and Scientific Symposium of International Union of Radio Science"** during 13-20 August, 2011, at Istanbul Lutfi Kirdar Convention & Exhibition Centre, Istanbul, Turkey.
10) Attended **"International Workshop on Seismo-Electromagnetics and Atmospheric Science (IWSE-AS 2010)"** during 16-18 November 2010, organized by 'Department of Physics, Faculty of Engineering & Technology, RBS College, Bichpuri, Agra, India.

11) Attended 1st international conference on **"Very Low Frequency (VLF) Radio Waves : Theory & Observations"** from 14th March, 2010 to 18th March, 2010, at S. N. Bose National Centre for Basic Sciences, Kolkata, India, organized by 'S. N. Bose National Centre for Basic Sciences', Kolkata, India.

12) Attended **"Physics 2005 and beyond – A few Glimpses"** on 7th February, 2005 at the Department of Physics, Jadavpur University, Kolkata, India, organized by 'Nuclear and Particle Physics Research Centre, Department of Physics, Jadavpur University, Kolkata, India.

ACADEMIC VISITS ABROAD:

1) Visited **'Moscow State University', Moscow, Russia** to attend the "40th COSPAR Scientific Assembly" during 2-10 August, 2014.

2) Visited **Istanbul, Turkey** to attend the "XXX URSI General Assembly and Scientific Symposium of International Union of Radio Science" during 13-20 August, 2011at Istanbul Lutfi Kirdar Convention & Exhibition Centre.

LIST OF PUBLICATIONS :

IN JOURNALS :

1) "Ionospheric anomaly due to seismic activities-III: correlation between night time VLF amplitude fluctuations and effective magnitudes of earthquakes in Indian sub-continent" by **S. Ray**, S. K. Chakrabarti, S. K. Mondal, S. Sasmal, *Nat. Hazards Earth Syst. Sci.*, 11, 2699-2704, 2011.

2) "Precursory effects in the nighttime VLF signal amplitude for the 18th January, 2011 Pakistan earthquake" by **S. Ray,** S. K. Chakrabarti and S. Sasmal, *Ind. J. Physics*, 86(2), 85-88, 2012.

3) "VLF signals in summer and winter in the Indian sub-continent using multi-station campaigns" by Sandip K. Chakrabarti, S. K. Mondal, S. Sasmal, S. Pal, T. Basak, S. Chakrabarti, D. Bhoumik, **S. Ray**, S. Maji, A. Nandi, V. K. Yadav, T. B. Kotoch, B. Khadka, K. Giri, S. K. Garain, A. K. Choudhury, N. N. Patra, N. Iqbal, *Ind. J. Physics*, 86(5), 323-334, 2012.

4) "VLF campaign during the total eclipse of July 22nd, 2009: Observational results and interpretations" by S. K. Chakrabarti, S. Pal, S. Sasmal, S. K. Mondal, **S. Ray,** T. Basak, S.

K. Maji, B. Khadka, D. Bhowmick, A. K. Chowdhury, *Journal of Atmospheric and Solar Terrestrial Physics,* 86, 65–70, 2012.

5) "A Study on the behaviors of the terminator shifts of the VLF signals using the multiple VLF propagation paths during the Pakistan earthquake, occurred on 19th Jan., 2011" by **S. Ray** and S. K. Chakrabarti, *Nat. Hazards Earth Syst. Sci.,* 13, 1501-1506, 2013.

6) "Unusual behavior of Very Low Frequency signal during the earthquake at Honshu/ Japan on 11 March, 2011" by S. Sasmal, S. K. Chakrabarti and **S. Ray**, *Ind. J. Physics,* 88(10), 1013-1019, 2014.

7) "Modeling of the lower ionospheric response and VLF signal modulation during a total solar eclipse using ionospheric chemistry and LWPC", by Suman Chakraborty, Sourav Palit, **Suman Ray**, Sandip K. Chakrabarti1, *Astrophys Space Sci,* 361 (2), 1-15, 2016.

8) "Inverse Problem in Ionospheric Science: Prediction of Solar Soft-X-ray Spectrum from Very Low Frequency Radiosonde Results" by Sourav Palit, **Suman Ray**, and Sandip K. Chakrabarti, *Astrophys Space Sci,* 361 (5), 1-11, 2016.

9) "Numerical modeling of possible lower ionospheric anomalies associated with Nepal earthquake in May, 2015" by Suman Chakraborty, Sudipta Sasmal, Tamal Basak, Soujan Ghosh, Sourav Palit, Sandip K. Chakrabarti and **Suman Ray**, *Advances in Space Research*, 60, 1787-1796, 2017.

10**) "**Observations and modeling of D-region ionospheric response of Annular Solar Eclipse on December 26, 2019, using VLF signal amplitude and phase variation", by S. Ghosh, S. Chowdhury, S. Kundu, S. Biswas, A. Dawn, **S. Ray**, A. K. Choudhury, Md.W. Bari, D. Bhowmick, S. Manna, S. K. Mondal, S. Chakrabarti, R. Maiti, R. C. Das, T. Basak, S. K. Chakrabarti, *Astrophysics and Space Science*, 368:19, 2023 (https://doi.org/10.1007/s10509-023-04179-1).

IN PROCEEDINGS :

1) 'Correlation between seismic events and anomalous VLF day-length for west-east and east-west propagation paths' by **S. Ray**, S. K. Chakrabarti and S. Sasmal, *General Assembly and Scientific Symposium (URSI GASS), 2014 XXXIth URSI, IEEE,* DOI: 10.1109/URSIGASS.2014.6929823.

2) 'Unusual shifts in terminator times of the VLF signals before the Pakistan earthquake (M=7.4), occurred on 18th Jan., 2011' by **S. Ray** and S. K. Chakrabarti, *General Assembly and Scientific Symposium (URSI GASS), 2014 XXXIth URSI, IEEE,* DOI: 10.1109/URSIGASS.2014.6929819.

3) 'Studies of precursors of earthquakes using anomalies in very low frequency signal' by S. Sasmal, S. K. Chakrabarti and **S. Ray,** *General Assembly and Scientific Symposium (URSI GASS), 2014 XXXIth URSI, IEEE,* DOI: 10.1109/URSIGASS.2014.6929820.

4) 'Studies of VLF signal anomalies due to earthquake' by S. K. Chakrabarti, S. Sasmal, **S. Ray** and Bakul Das, *General Assembly and Scientific Symposium (URSI GASS), 2014 XXXIth URSI, IEEE,* DOI: 10.1109/URSIGASS.2014.6929580.

5) 'Study of the anomalous behaviors of the ionosphere during earthquake for VTX-Malda Baseline' by **S. Ray**, S. K. Chakrabarti, S. Sasmal and A. Choudhury, *AIP Conference Proceedings,* 1286, 298-308, 2010, ISBN: 978-0-7354-0841-8.

6) 'Precursor of earthquake using night time VLF amplitude' by **S. Ray** and S. K. Chakrabarti, *General Assembly and Scientific Symposium, 2011 XXXth URSI, IEEE,* DOI: 10.1109/URSIGASS.2011.6051045, ISBN: 978-1-4244-5117-3.

7) 'Anomalous behaviors of the VLF Signals before earthquakes for VTX-Malda propagation path' by **S. Ray** and S. K. Chakrabarti, *General Assembly and Scientific Symposium, 2011 XXXth URSI, IEEE,* DOI: 10.1109/URSIGASS.2011.6051047, ISBN: 978-1-4244-5117-3.

8) 'Result of VLF Campaigns in Summer and Winter in Indian sub-continent' by S. K. Chakrabarti, S. Pal, S. Sasmal, S. K. Mondal, **S. Ray** and T. Basak, *General Assembly and Scientific Symposium, 2011 XXXth URSI, IEEE,* DOI: 10.1109/URSIGASS.2011.6051007, ISBN: 978-1-4244-5117-3.

9) 'VLF observation results of total eclipse of 22nd July, 2009 by ICSP team' by by S. K. Chakrabarti, S. Pal, S. Sasmal, S. K. Mondal, **S. Ray**, T. Basak and S. Maji, *General Assembly and Scientific Symposium, 2011 XXXth URSI, IEEE,* DOI: 10.1109/URSIGASS.2011.6051005, ISBN: 978-1-4244-5117-3.

IN BOOKS :

1) 'Short Term Earthquake Prediction Using VLF observation : An ICSP Initiative in Indian Sub- continent' by S. K. Chakrabarti, S. Sasmal and **S. Ray**, in 'The Frontier of Earthquake Prediction Studies', Ed. By M. Hayakawa, *Nihon-Senmontosho-Shuppan,* 678-687, 2012, ISBN: 978-4-931507-16-6.

2) 'ICSP Detections of Anomalous VLF Radio Wave Signals Prior to Major Earthquakes' by S. K. Chakrabarti, S. Sasmal and **S. Ray**, in "Earthquake prediction Studies – Seismo Electromagnetics", Ed. By M. Hayakawa, *Nihon-Senmontosho-Shuppan,* (TERRAPUB: Tokyo), 2013, 49-55, ISBN: 978-4-88704-163-9.

3) 'Study of Seismo-Ionospheric Coupling Using Perturbation in Very Low Frequency Radio Signal' by **Suman Ray**, in "Exploring the Universe: From Near Space to Extra-Galactic", Ed. By B. Mukhopadhyay and S. Sasmal, *Astrophysics and Space Science Proceedings 53,* (Springer International Publishing AG), 2018, 597-609, ISBN: 978-3-319-94606-1.

4) 'Possible Precursory Effects of Seismic Events in VLF Radio Signals' by **Suman Ray**, in "Advances in Modern and Applied Sciences", Ed. By S. Pal & T. K. Biswas, *Scientific Research Publishing*, 2022, 171-178, ISBN: 978-1-64997-437-2