

# CURRICULUM VITAE

**Vrinda Mukundan**

**Research Associate**

**Space Physics Laboratory**

**Vikram Sarabhai Space Center, ISRO**

**Thiruvananthapuram – 695022, India**

**Email: vrinda\_mukundan[at]vssc[dot]gov[dot]in**

---

## **Research Interest**

Planetary science, Interaction of solar radiation with planetary atmospheres, Upper atmosphere-ionosphere, Modelling the upper atmospheric photochemistry of planets to understand the physics and chemistry of upper atmosphere region. Monte Carlo simulations for particle energy degradation in planetary atmospheres.

## **Education**

- 2013 – 2018 : Ph.D., (Thesis submitted), Cochin University of Science and Technology  
Thesis Title: Modelling the Dayside Ionosphere of Titan: Application of Electron Degradation Model for Methane
- 2012 - 2013 : M.Phil in Physics (Astrophysics), Christ university, Bangalore.  
Thesis title - Optical and Infrared Photometric Study  
Pre-Main Sequence Stars in Young Open Cluster NGC 7419
- 2009 - 2011 : M. Sc in Physics , Mahatma Gandhi University, Kottayam
- 2006 - 2009 : B. Sc in Physics , Mahatma Gandhi University, Kottayam

## **Refereed Journal Publications**

Vrinda Mukundan and Anil Bhardwaj (2018), A model for negative ion chemistry in Titan's ionosphere, The Astrophysical Journal, 856, 168-175, doi: 10.3847/1538-4357/aab1f5

Vrinda Mukundan and Anil Bhardwaj (2018), Dayside ionosphere of Titan: Impact on calculated plasma densities due to variations in the model parameters, Icarus, 299, 222-239, doi:10.1016/j.icarus.2017.07.022.

Vrinda Mukundan and Anil Bhardwaj, Monte Carlo model for electron degradation in Xenon gas, *Proceedings of Royal Society A*, 472, issue 2187 (2016).  
doi:10.1098/rspa.2015.0727

Anil Bhardwaj and Vrinda Mukundan, Monte Carlo model for electron degradation in methane gas, *Planetary and Space Science*, 111, 34–43 (2015). doi: 10.1016/j.pss.2015.03.008

### **Conference Presentations**

Vrinda Mukundan, Anil Bhardwaj, Monte Carlo model for electron degradation in methane gas, 20th National Conference on Atomic and Molecular Physics (NCAMP – XX), Indian Institute of Science and Technology, Trivandrum, 9th-12th December, 2014.

Vrinda Mukundan, Anil Bhardwaj, Monte Carlo model for electron degradation in planetary atmospheric gases: Methane and Xenon, 19<sup>th</sup> National Space Science Symposium (NSSS–2016), Vikram Sarabhai Space Center, Trivandrum, 9th-12th February, 2016.

Vrinda Mukundan, Anil Bhardwaj, Calculation of ion production rates and electron densities for Titan's sunlit upper atmosphere, 19<sup>th</sup> National Space Science Symposium (NSSS–2016), Vikram Sarabhai Space Center, Trivandrum, 9th-12th February, 2016.

Vrinda Mukundan, Anil Bhardwaj (2017), Calculation of ion production rates and electron densities for the dayside ionosphere of Titan, 29th Kerala Science Congress (KSC 2017) at Mar Thoma College, Pathanamthitta

Vrinda Mukundan, Anil Bhardwaj (2017), Photochemical model for the dayside ionosphere of Titan, Commonwealth Science Conference 2017 at Singapore.

Vrinda Mukundan, Anil Bhardwaj (2017), Photochemical modelling on the dayside ionosphere of Titan, Meeting on the scientific outcomes of Cassini- Huygens mission at Physical Research Laboratory, Ahmedabad.

### **Seminars/Workshops participated**

TIFR School on Advances in Atomic Collisions (TISAAC) organized by Tata Institute of Fundamental Research (TIFR) at Homi Bhabha Center for Science Education (HBCSE), Mumbai, 6-18 March 2017

National workshop on Aerospace Systems Modelling and Simulations ASMS 2016,  
organized by Systems Society of India and Vikram Sarabhai Space Center,  
Thiruvananthapuram, 9-10 December, 2016

Sixteenth Workshop on Exploration of inner solar system objects, Planetary Sciences and  
Exploration Programme (PLANEX), 7-10 March 2016 at Physical Research Laboratory,  
Ahmedabad