

## Curriculum Vitae



Position/Designation: Associate Professor

Department: Department of Mathematical and Physical Sciences

College: College of Arts & Sciences

University of Nizwa, Sultanate of Oman

### Personal Information

Name: Dr. Baiju Dayanandan  
Marital Status: Married  
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Contact Numbers: 25446546

### Academic Qualifications

#### Academic Qualifications:

➤ **Ph.D.: Physics**

**Title of Ph.D. Thesis:** *VHF Ionospheric Scintillation & Total Electron Content Studies over Low Latitude, In Special Reference to Space Weather Science.*

University: M.L. Sukhadia University, Udaipur Rajasthan, India. (2010)

➤ **Post-graduation: M.Sc. Physics**

University: Mahatma Gandhi University, Kerala, India (2000)

➤ **Graduation:**

(a). **Bachelor Degree in Science. (Physics-Main)**

University: Mahatma Gandhi University, Kerala, India (1997)

**(b). Bachelor Degree in Education (Physical Science)**

University: Kerala University, Kerala, India (1998)

**Teaching Activities, Current / Previous Experience**

I have teaching experience at all levels.

**Subject taught:**

General Physics-I, General Physics-II, Laser Design, Laser Industrial Applications, Laser Communication, Laser Interaction with matter, Modern Physics ,Nuclear Science and Applications, Optoelectronics, Physics for Teacher-I, Physics for Teacher-II, Quantum Mechanics-I, Quantum Mechanics-II, Radiology X-ray and Dosimetry, Solid State Physics, Sound and Optics, Radiology X-ray and Dosimetry, Experimental methods in electronics, Experiential methods in nuclear science and applications, electromagnetism and applications, Thermal and Statistical Physics, Thermal Fluid, Thermodynamics and Applied spectroscopy,

**DETAILS OF ACADEMIC POSITIONS**

- June 2018/ till date : Associate Professor, Department of Mathematical and Physical Science, College of Arts and Sciences, University of Nizwa.
- February 2011/ June 2018 : Assistant Professor, Department of Mathematical and Physical Science, College of Arts and Sciences, University of Nizwa.
- January 2010/ February 2011 : Lecturer, Department of Mathematical and Physical Science, College of Arts and Sciences, University of Nizwa.
- August 2007 / January 2010 : Lecturer of Physics, Royal Oman Air Force Technical College, Sultanate of Oman.
- October 2004/June 2007 : Research Scholar, M.L.Sukhadia University, Udaipur, Rajasthan, India.
- June 2000/ September 2002 : Lecturer of Physics, Imperial Arts and Science College, Alappuzha, India.

**Research Activities**

(includes but not limited to research interests, conference attendance, conference presentations and publications, refereed journal, articles ,books, ect.)

Research interests:

**Conference presentations:**

- D.Baiju, Vyas, B.M.& Pandey, R (2006); *Study of VHF Ionospheric Scintillation During Geomagnetic Storms at Udaipur*, Proceedings of XIV National Space Science Symposium, Visakhapatnam, India, 2 IT-03, P.78
- Baiju, D. & Vyas, B.M. (2008): *Characteristics of VHF Ionospheric Scintillations during different epochs of Solar Cycle over Udaipur (24.35° N, 73.42 °E)*, Proceeding of 15<sup>th</sup> National Space Science Symposium (XV NSSS-2008), Ooty,India, PS2-P-097
- Dr. M K Jasim, B. Dayanandan and Smitha T.T; *Numerical simulations of charged analogues of isotropic super dense star model* International Conference on Numerical Analysis and Optimization January 3-6, 2011, Sultan Quboos university, Muscat, Sultanate of Oman
- Badriya Al-Mawali, Sultan Al-Yahyai, Baiju Dayanandan and Smitha.T. T; *Numerical Model Simulation of Indian Summer Monsoon Over South of Oman khareef;*, Public Authority of Civil Aviation, Oman National Meteorological Service held at held at the Indian Institute of Tropical Meteorology, Pune, India, 2-3 March 2015 Monsoon Workshop
- Relativistic charged compact star model: An embedding class one approach, International Conference on Science, Engineering &Technology – ICSET, 12/04/2019 (Muscat)
- B. Dayanandan, B. Paul and P. Galav; *Ionospheric Response to the Second Strongest Geomagnetic Storm of the Solar Cycle 24: First Results from the Arabian Peninsula," 2020 IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE), 2020, pp. 101-105, doi: 10.1109/WiSEE44079.2020.9262692.*
- B. Dayanandan, Piyushkumar N. Patel, Pravash Tiwari, Issa Al-Amri, Smitha T.T, Humaid Al Badi, Khamis Al-Riyami; *Long-term changes in aerosol loading and observed impacts on radiative budget over Middle-East ; 4th International Conference on Atmospheric Sciences held from July 16 to 31, 2021.*

- B. Dayanandan, Piyushkumar N. Patel, Pravash Tiwari, Issa Al-Amri, **Smitha T.T.**, Humaid Al Badi, Khamis Al-Riyami; Climatology and trend of aerosol optical depth and associated changes in radiative budget over Middle-East; AGU Fall Meeting 2021- Multisensor, Model, and Measurement Synergy to Improve Our Understanding of Aerosol Distributions and Processes will take place in New Orleans, USA, from 13-17 December, 2021.

## PUBLICATIONS

- Baiju Dayanandan , T.T. Smitha, S.K. Maurya ; “Self-gravitating anisotropic star using gravitational decoupling ” *Physica Scripta* (2021) Impact Factor: 2.487. H index: 83, SCI, Scopus,<https://doi.org/10.1007/s10509-020-3734-6>
- **B. Dayanandan, Smitha T.T.:** Modelling of Dark Energy Stars with Tolman IV gravitational potential, *Chinese Journal of Physics*, (Elsevier), Vol.71, p. 683-692 (2021) Impact factor- 3.31 , H- Index- 38, (Taiwan), <https://doi.org/10.1016/j.cjph.2021.02.004>
- S.K. Maurya, Ksh. Newton Singh, Baiju Dayanandan; *Non-singular solution for anisotropic model by gravitational decoupling in the framework of complete geometric deformation stars*, *The European Physical Journal C* (2020) 80:448 <https://doi.org/10.1140/epjc/s10052-020-8005-8>
- Baiju Dayanandan , T.T. Smitha, S.K. Maurya ; “*Embedding class I spherically symmetric charged compact star model*” *Astrophys Space Science* (2020) 365(2) <https://doi.org/10.1007/s10509-020-3734-6>
- Amit Kumar Prasad,; Jitendra Kumar,; S.K Maurya,; Baiju Dayanandan; “*Relativistic model for anisotropic compact stars using Karmarker Conditions*” *Astrophys Space Science* (2019) 364:66 <https://doi.org/10.1007/s10509-019-3553-9>

- (iii) S.K. Maurya, S. R. Choudhury, Saibal Ray, Baiju Dayanandan; “*Study of compact Star with class I metric under general relativity contributing*”: Candian Journal of Physics(2019), <https://doi.org/10.1139/cjp-2018-0560>
- Baiju Dayanandan, S.K. Maurya, T.T. Smitha,; *Modeling of charged anisotropic compact stars in general relativity*; Published in European Physical Journal A (Springer-Verlag), Vol:53, pp:1-10 Article no.141, 2017 Impact factor-2.833, H-Index-70. <https://doi.org/10.1140/epja/i2017-12304-8>
- Baiju Dayanandan, S.K. Maurya, Y.K. Gupta, T.T. Smitha; *Anisotropic generalization of Matese & Whitman solution for compact star models in general relativity*, Astrophys Space Sci (2016) 361:160 DOI 10.1007/s10509-016-2743-y
- S.K. Maurya, Y.K. Gupta, Baiju Dayanandan, Saibal Ray; *A new model for spherically symmetric anisotropic compact star*, The European Physical Journal C (2016) 76:226 DOI 10.1140/epjc/s10052-016-4111-z
- S.K. Maurya, Y.K. Gupta, Baiju Dayanandan, M. K. Jasim, Ahmed Jamal; *Relativistic anisotropic models for compact star with equation of state  $p = f(\rho)$* , International Journal of Modern Physics D (2016) Vol. 26 (2017) 1750002 (22 pages) World Scientific Publishing Company DOI: 10.1142/S021827181750002X
- M. K. Jasim, S.K. Maurya, Y. K. Gupta; B. Dayanandan; *Well behaved anisotropic compact star models in general relativity*, Astrophys Space Sci (2016) DOI 10.1007/s10509-016-2940-8.
- S.K. Maurya, Y.K. Gupta, Saibal Ray, Baiju Dayanandan; *Anisotropic models for compact stars*, The European Physical Journal C (2015) 75:225 DOI 10.1140/epjc/s10052-015-3456-z

- S.K. Maurya , Y.K. Gupta, Baiju Dayanandan, T.T. Smitha; *Three new exact solutions for charged fluid spheres in general relativity*, Astrophys Space Sci (2014) 355:2200 DOI 10.1007/s10509-014-2200-8
- B.M. Vyas and D.Baiju; *Response of Ionospheric Total Electron Content on various Geomagnetic and Interplanetary Field Parameters over Indian Sub- Continent*, International Journal of Applied Physics, ISSN 2249-3174 Volume 3, Number 1 (2013), pp. 23-41
- D.Baiju and B.M. Vyas; *Study of VHF Ionospheric Scintillation During Geomagnetic Storms at Udaipur*” International Journal of Astronomy, Vol.2, No.1, February 2013
- D.Baiju and B.M. Vyas; *Study of Night time VHF Ionospheric Scintillations over crest of Equatorial Appleton Anomaly Indian Station, Udaipur*” Acta Geod. Geoph. Hung. (Vol 46, 2011, No. 1, March)
- B.M. Vyas and D.Baiju ; *Study of Total Ionospheric Electron Integrated Production and Effective Loss Rates over Ahmedabad*” Pure and Applied Science volume 27D, P1-12,2008

#### **RESEARCH PROJECTS AT UNIVERSITY OF NIZWA:**

- i. The research project entitled ‘**An Extensive study of exact solutions of Einstein field equations with antigravity and dark matter contributions**’ is financed by the Research and Publications Committee of University of Nizwa. The project deals with the compact star modeling, antigravity and dark matter contributions [2015-2017].
- ii. The research project entitled “**Synergy of ground based and satellite measurements for atmospheric aerosol monitoring over middle east**” is Approved by TRC-(**RG**) BFP/RGP/EBR/21/009 (2021-2023).
- iii. The research project entitled “**The Earth’s outer radiation belt response to the geomagnetic storm**”- is Approved by TRC-(**GRG**) BFP/GRG/EBR/21/017 (2021-2023).

- iv. The research project entitled “**Characterization of atmospheric aerosols and their direct radiative implications over Middle**”-East BFP/URG/EBR/21/068 (URG) (2021-2023).

### **Research Interests**

- Multiple satellite data analysis
- Compact star modeling
- Ionospheric physics
- Aerosol-cloud interactions and their climate feedbacks
- Role of dynamics in aerosol-cloud interaction
- Satellite remote sensing and process studies of clouds Aerosol direct and indirect effects

### **Faculty Administrative Experience**

- Acting Head of the Dept. of Physics, UN on several occasions since 2011

### **Community Services**

- Organizing committee member of International Arab Conference in Information Technology (ACIT 2015)
- Initiated collaborate research work with Meteorological department of Oman as well as presented a paper internationally
- Supervisor of student activities for Physics Section (2010-2018)
- Chair of DMPS department academic advising committee since (2015-2021)
- Convener of Physics section (2012-2021)
- Member of timetabling committee of DMPS since 2012
- Member of Final Project committee of DMPS (2015-2021)
- Programme coordinator for Physics section since 2016
- Member of Examination committee of DMPS (2016-2017)
- Member of quality assurance committee of DMPS since 2016
- Member of curriculum committee of DMPS (2019-2021)
- Member of promotion committee of DMPS (2019-2021)
- Member of promotion college promotion committee since 2021

Consultancy Activities
Membership in Professional Bodies
<ul style="list-style-type: none"><li>➤ Member of American Geophysical Union</li><li>➤ Life Member of Indian Aerosol Association of Science and Technology</li><li>➤ Editorial member <a href="#">International Journal of Advanced Research in Physical Science</a></li><li>➤ Reviewer of Springer Journals</li><li>➤ Reviewer International Journal of Astronomy</li><li>➤ Reviewer Atmosphere(MDPI)</li></ul>
Awards and recognitions