



**Dr. Meenu Venugopal**

Assistant Professor

Department of Physics

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❖ **EDUCATIONAL QUALIFICATIONS:**

- **Ph.D** in Physics from Mar Ivanios College in 2020 (University of Kerala)
- **M.Phil** Nanoscience and Nanotechnology from University of Kerala, Kariavattom in 2014
- **M.Sc** Physics from NSS College Pandalam in 2011 (University of Kerala)
- **B.Sc** Physics from HHMSPBNSS College for Women in 2009 (University of Kerala)
- **Plus- two** from Saraswathi Vidyalaya, Vattiyoorkavu in 2006 (CBSE)
- **Tenth** from Kairali Vidya Bhavan, Nedumangad in 2004 (CBSE)

❖ **TEACHING EXPERIENCES:**

- Assistant Professor, Department of Physics, Christ Nagar College, Maranalloor from June 2022.
- Guest lecturer at Department of Physics, St. Xavier's College, Thumba, Thiruvananthapuram during 2021-2022.
- Guest lecturer at Department of Physics at NSS College, Pandalam during 2011-2012.

❖ **RESEARCH EXPERIENCES**

➤ **Doctor of Philosophy in Physics 2020**

*Title:* **Investigations on certain Lanthanide doped Zirconate Perovskites for optoelectronic applications**

*Research Centre:* **Department of Physics, Mar Ivanios College, Nalanchira, Trivandrum**

*Advisor:* **Dr. H. Padma Kumar**, Assistant Professor and Head of the Department of Physics, Mahatma Gandhi College, Thiruvananthapuram

- **Project Assistant** at Department of Physics, VTM NSS College, Dhanuvachapuram from February 2014 under a project funded by Science & Engineering Research Board (SERB), Department of Science and Technology, Ministry of Science and Technology, Government of India under the scheme Fast Track Scheme for Young Scientists (SR/FTP/PS-070/2010).

- **M. Phil. Project**

*Title: "Novel Sensitizers for Dye Sensitized Solar Cells"*

*Research Centre: Polymers and Special Chemicals Division, Vikram Sarabhai Space Centre, Thumba, Thiruvananthapuram-695022, Kerala, India  
September 2013 to January 2014.*

*Advisor: Dr. Dona Mathew, Division Head, Polymers and Special Chemicals Division, Vikram Sarabhai Space Centre, Thiruvananthapuram*

- **M. Sc. Project**

*Title: "Study on radio duct formation over Thumba through variation in radio refractive index"*

*Research Centre: Meteorology Facility, Thumba Equatorial Rocket launching station, Vikram Sarabhai Space Centre, Thumba, Thiruvananthapuram-695022, Kerala, India*

*Advisor: Dr. K. V. S. Namboodiri, Scientist/Engineer-SG, Meteorology Facility, Thumba Equatorial Rocket Launching Station (TERLS), Vikram Sarabhai Space Centre (VSSC), Indian Space Research Organization, Thiruvananthapuram*

- ❖ **Project Supervising Experience**

- Co-supervised B.Sc, M. Sc and M. Phil Physics projects of students from different universities.

- ❖ **Analytical skills**

- Synthesis and characterization of perovskite based conventional and nanomaterials through approaches like solid state ceramic route method and auto igniting combustion synthesis.
- Characterization techniques like XRD, UV-Vis, PL, FTIR, TEM, SEM, EDS, Dielectric.

- Good knowledge in using research-oriented software like Origin, MATLAB etc.

#### ❖ **Memberships in Academic Bodies**

- *Life time member of Academy of Physics Teachers Kerala (APT Kerala)*

#### ❖ **Invited Talks**

- *Talk entitled "Earth: Our Only Home" at Sree Sankara Vidyapeetom College, Valayanchirangara on Environmental Day 2023*

#### ❖ **Book Publications**

1. Book entitled "*Prapanja Rahasyangal Thedi*" in Malayalam has been published with DC books, Kottayam

#### ❖ **Book Chapter published**

1. **Meenu Venugopal**, H. Padma Kumar, "**Single Phase Lanthanide Doped White Light Emitting Perovskites for Optoelectronic Applications**", Horizons in world Physics, Nova Science Publishers, Volume 306, 2021

#### ❖ **List of International Publications**

1. **Meenu Venugopal**, H. Padma Kumar, R. Jayakrishnan. "Tunable blue-yellow and orange-red emissions from Dysprosium and Samarium doped SrCeO<sub>3</sub> perovskite systems." Journal of Solid State Chemistry. 296 (2021) 121975. doi: 10.1016/j.jssc.2021.121975
2. **Meenu Venugopal**, H. Padma Kumar, R. Jayakrishnan. "Near-white light emission from samarium and dysprosium combined doped calcium zirconate spin-coated thick film." Bulletin of Materials Science. 44(2) (2021) 1-5. doi: 10.1007/s12034-021-02377-7
3. **Meenu Venugopal**, S. Saravana Kumar, K.M. Nissamudeen and H. Padma Kumar, "Optical and dielectric characterisation of Ceria nanocrystals synthesized by an auto-igniting combustion technique." Journal of Materials Science: Materials in Electronics, 27(9) (2016) 9496-502. doi: 10.1007/s10854-016-5000-9
4. **Meenu Venugopal**, H. Padma Kumar, R. Satheesh, R. Jayakrishnan, "Tailoring the photoluminescent properties of samarium and dysprosium co-doped calcium zirconate

perovskites for WLED applications.” International Journal of Applied Ceramic Technology, 16 (3) (2019) 1228-38. doi: 10.1111/ijac.13174

5. **Meenu Venugopal**, H. Padma Kumar, R. Satheesh, R. Jayakrishnan, “Enhanced photoluminescence in  $\text{CaZr}_{0.9}\text{Sm}_x\text{Dy}_{(0.1-x)}\text{O}_3$  perovskites by  $\text{Mg}^{2+}$  and  $\text{Al}^{3+}$  co-doping for WLED Applications.” Materials Research Express. 6 (2019) 076201. doi: 10.1088/2053-1591/ab0dbd
6. **Meenu Venugopal**, H. Padma Kumar, and R. Jayakrishnan. “Synthesis, Characterization and Photoluminescent properties of  $\text{Sm}^{3+}/\text{Dy}^{3+}$  doped Strontium Zirconate Perovskites”, Journal of Electroceramics. (2020) 1-10. doi: 10.1007/s10832-020-00207-6
7. **Meenu Venugopal**, H. Padma Kumar, R. Satheesh, and R. Jayakrishnan. “Effect of annealing temperature in the emission properties of nanocrystalline  $\text{CaZr}_{0.9}\text{Sm}_x\text{Dy}_{0.1-x}\text{O}_3$  systems prepared via self- propagating combustion Synthesis” Physics Letters A, 384(14) (2020) 126280. doi: 10.1016/j.physleta.2020.126280
8. Satheesh R, **Meenu Venugopal**, Kumar HP. Influence of structural variation on the optical properties of  $\text{Y}_2-x\text{Sm}_x\text{Mo}_3\text{O}_{12}$  phosphors. Journal of Materials Science: Materials in Electronics. 33(21) (2022) 16837-55. doi: 10.1007/s10854-022-08554-6
9. Satheesh R, **Meenu Venugopal**, Kumar HP. Optical characterization of rare-earth activated  $\text{La}_{2-x}\text{Ln}_x(\text{MoO}_4)_3$  ( $\text{Ln} = \text{Dy}, \text{Sm}$ ) phosphors. Journal of Molecular Structure. 2023 Jun 5;1281:135111. doi: 10.1016/j.molstruc.2023.135111
10. S. V. Aswathy, **Meenu Venugopal** and H. Padma Kumar, “Photoluminescent properties of nanocrystalline  $\text{Sm}^{3+}$ -doped  $\text{CaO}-\text{CeO}_2$  system synthesized by an auto-igniting combustion synthesis technique. Modern Physics Letters B, 32(22) (2018) 1850255. doi: 10.1142/So21798491850255X
11. H. Padma Kumar, S. Saravana Kumar, **Meenu Venugopal**, Binila, R, K.M. Nissamudeen J. K.Thomas and Sam Solomon, “Synthesis, characterization and photoluminescent properties of  $\text{BaZr}_x\text{Nd}_{1-x}\text{O}_3$  perovskites.” Journal of Alloys and Compounds, 629 (2015) 173-7. doi: 10.1016/j.jallcom.2015.01.011
12. **Meenu Venugopal** and H. Padma Kumar, “Photoluminescent properties of  $\text{Pr}^{3+}$  doped  $\text{YTlAO}_6$  ( $\text{A} = \text{Nb}\&\text{Ta}$ ) euxenite compounds”, In AIP Conference Proceedings, 2018 Apr 10 (Vol. 1942, No. 1, p. 060013). AIP Publishing, doi:10.1063/1.5028783
13. **Meenu Venugopal** and H. Padma Kumar, “Orange Red emission for Dysprosium doped  $\text{BaZrO}_3$  perovskites”, International Journal of Advanced Research in Science and Engineering, 06(3), (2017)

## ❖ List of Conference Papers and Posters

1. Presented a paper entitles “Structural and Optical properties of Samarium doped  $\text{MgTiO}_3$  perovskites” in National Conference on Advanced Functional Materials held at VTMNSS College, Dhanuvachapuram, 2023, March 23-24.
2. Presented a paper entitles “Synthesis and characterization of Nd doped  $\text{BaZrO}_3$  nanocrystals prepared by an auto-igniting combustion technique” in A national Seminar on light (OPTICS'15) held at VTMNSS College, Dhanuvachapuram, 2015, Nov 12-13. **(First Prize)**
3. Presented a paper entitles “Synthesis, characterization and photoluminescent properties of Dysprosium doped  $\text{BaZrO}_3$  perovskites” in National seminar on Materials Science and Characterization held at Nedumangad Government College, 2015, Dec 14-16. **(First Prize)**
4. Presented a paper entitles “Synthesis, characterization and photoluminescent properties of Dysprosium doped  $\text{SrZrO}_3$  perovskites” in National Seminar on Theoretical and Experimental Physics (NSTEP 2016) held at Government College for Women, Vazhuthacaud, 2016, Dec 6-8. **(First Prize)**
5. Presented a paper entitles “Synthesis and characterization of nanocrystalline  $\text{SrCeO}_3$  prepared by an auto-igniting combustion technique” in International Conference on Nanotechnology (ICON 2017) held at Nesamony Memorial Christian College, Marthandam, 2017, Feb 15 -16 **(Best Paper Award)**
6. Presented a poster entitles “Improved sinterability of nano  $\text{CeO}_2$  ceramic powders prepared by auto igniting single step combustion synthesis” in A national Seminar on light (OPTICS'15) held at VTMNSS College, Dhanuvachapuram, 2015, Nov 12-13. **(Second Prize)**
7. Presented a poster entitles “Photoluminescent properties of nanocrystalline  $\text{Sr}_2\text{CeO}_4$  synthesized by an auto-igniting combustion technique” in First International Conference on Advanced Materials for Power Engineering (ICAMPE 2015) held at Mahathma Gandhi University, Kottayam, 2015, Dec 11-13.
8. Presented a poster entitles “Photoluminescent properties of Praseodymium doped  $\text{Y}_2\text{O}_3$  nanocrystals prepared by an auto igniting combustion technique” in International Conference on Materials Science and Technology (ICMST 2016) held at St. Thomas College, Kottayam, 2016, Jun 5-8.
9. Presented a poster entitles “Orange red emission for Dysprosium doped  $\text{BaZrO}_3$  perovskites” in Advances in Functional Materials (AFM 2017) held at All Saints' College, Thiruvananthapuram, 2017, Sep 19-20.