Dr. Meenu Venugopal

Assistant Professor
Department of Physics
Christ Nagar College
Maranalloor
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❖ EDUCATIONAL QUALIFICATIONS:

- **Ph.D** in Physics from Mar Ivanios College in 2020 (Kerala University)
- **M.Phil** in Nanoscience and Nanotechnology from University of Kerala, Kariavattom in 2014 – A grade
- **M.Sc** in Physics from NSS College Pandalam in 2011 (Kerala University)– 82%
- **B.Sc** in Physics from HHMSPBNSS College for Women in 2009 (Kerala University) – 86%
- **Plus- two** from Saraswathi Vidyalaya, Vattiyoorkavu in 2006 (CBSE) – 80%
- **Tenth** from Kairali Vidya Bhavan, Nedumangad in 2004 (CBSE) – 88%

❖ 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
- Worked as 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, FullProf, VESTA 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

- Chief Guest for the International Moon Day Celebrations 2025 at Government High School, Kandala

❖ List of Publications

1. Ragin Ramdas M**, Meenu Venugopal.** "Short review on self-healing perovskite Materials: Advances and prospects.**"** Materials Letters**. (2024)** 354, 135365. doi:10.1016/j.matlet.2023.135365

2. R. Satheesh, **Meenu Venugopal**, H. Padma Kumar. "Optical characterization of rare-earth activated La2-xLnx (MoO4) 3 (Ln= Dy, Sm) phosphors." Journal of Molecular Structure. **(2023)**, 1281, 135111. doi: 10.1016/j.molstruc.2023.135111

3. R. Satheesh, **Meenu Venugopal,** Padma Kumar, Influence of structural variation on the optical properties of Y2−xSmxMo3O12 phosphors. J Mater Sci: Mater Electron (**2022**). https://doi.org/10.1007/s10854-022-08554-6

4. **Meenu Venugopal**, H. Padma Kumar, R. Jayakrishnan. "Tunable blue-yellow and orange-red emissions from Dysprosium and Samarium doped SrCeO3 perovskite systems." Journal of Solid State Chemistry. 296 (**2021**) 121975. doi: 10.1016/j.jssc.2021.121975

5. **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

6. **Meenu Venugopal,** H. Padma Kumar, and R. Jayakrishnan. "Synthesis, Characterization and Photoluminescent properties of Sm^{3+}/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 $CaZr_{0.9}Sm_xDy_{0.1-x}O_3$ systems prepared via self- propagating combustion Synthesis" Physics Letters A, 384(14) (**2020**) 126280. doi: 10.1016/j.physleta.2020.126280

8. **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

9. **Meenu Venugopal,** H. Padma Kumar, R. Satheesh, R. Jayakrishnan, "Enhanced photoluminescence in $CaZr_{0.9}Sm_xDy_{(0.1-x)}O_3$ perovskites by Mg^{2+} and Al^{3+} co-doping for WLED Applications." Materials Research Express. 6 (**2019**) 076201. doi: 10.1088/2053-1591/ab0dbd

10. S. V. Aswathy, **Meenu Venugopal** and H. Padma Kumar, "Photoluminescent properties of nanocrystalline Sm^{3+} -doped $CaO–CeO_2$ system synthesized by an auto-igniting combustion synthesis technique. Modern Physics Letters B, 32(22) (**2018**) 1850255. doi: 10.1142/So21798491850255X

11. **Meenu Venugopal,** S. Saravana Kumar, K.M. Nisssamudeen 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

12. H. Padma Kumar, S. Saravana Kumar, **Meenu Venugopal,** Binila, R, K.M. Nisssamudeen J. K.Thomas and Sam Solomon, "Synthesis, characterization and photoluminescent properties of $BaZr_xNd_{1-x}O_3$ perovskites." Journal of Alloys and Compounds, 629 (**2015**) 173-7. doi: 10.1016/j.jallcom.2015.01.011

❖ Conference Proceedings

1. **Meenu Venugopal** and H. Padma Kumar, "Photoluminescent properties of Pr^{3+} doped $YTiAO_6$ (A= Nb&Ta) euxenite compounds", In AIP Conference Proceedings, 2018 Apr 10 (Vol. 1942, No. 1, p. 060013). AIP Publishing, doi:10.1063/1.5028783

2. **Meenu Venugopal** and H. Padma Kumar, "Orange Red emission for Dysprosium doped BaZrO3 perovskites", International Journal of Advanced Research in Science and Engineering, 06(3), (2017)

❖ Book Publication

1. Book entitled **"Prapanja Rahasyangal Thedi"** related to astrophysics in Malayalam has been published with DC books, Kottayam. **ISBN**: 9789354826719

2. Book entitled "Bhauthika Sasthrathile Penperuma" has been accepted for publication with Sasthra Sahithya Parishad, Trivandrum

❖ 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 Conference Papers and Posters

1. Presented a paper entitles "Synthesis and characterization of Nd doped $BaZrO_3$ 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)**

2. Presented a paper entitles "Synthesis, characterization and photoluminescent properties of Dysprosium doped $BaZrO_3$ perovskites" in National seminar on Materials Science and Characterization held at Nedumangad Government College, 2015, Dec 14-16. **(First Prize)**

3. Presented a paper entitles "Synthesis, characterization and photoluminescent properties of Dysprosium doped $SrZrO_3$ perovskites" in National Seminar on Theoretical and Experimental Physics (NSTEP 2016) held at Government College for Women, Vazhuthacaud, 2016, Dec 6-8. **(First Prize)**

4. Presented a paper entitles "Synthesis and characterization of nanocrystalline $SrCeO_3$ 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)**

5. Presented a poster entitles "Improved sinterability of nano 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)**

6. Presented a poster entitles "Photoluminescent properties of nanocrystalline Sr_2CeO_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.

7. Presented a poster entitles "Photoluminescent properties of Praseodymium doped Y_2O_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.

8. Presented a poster entitles “Orange red emission for Dysprosium doped $BaZrO_3$ perovskites” in Advances in Functional Materials (AFM 2017) held at All Saints’ College, Thiruvananthapuram, 2017, Sep 19-20.