

BIO-DATA

Name : Dr. Deepthi N Rajendran

Address : Assistant Professor
Department of Physics
Govt.College for Women
Thiruvananthapuram
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9446556736

Date of Birth : 31-05-1978

Gender (M/F/T): F

Academic Qualification (Undergraduate Onwards)

| | Degree | Year | Subject | Univesity/Institution | % of marks |
|---|--------|------|------------------|-----------------------|------------|
| 1 | BSc | 1998 | Physics | University of Kerala | 95 |
| 2 | MSc | 2000 | Physics | University of Kerala | 84 |
| 3 | BEd | 2001 | Physical Science | University of Kerala | 74 |
| 4 | MPhil | 2002 | Physics | University of Kerala | A Grade |
| 5 | PhD | 2007 | Physics | University of Kerala | |

Ph.D thesis title: “Studies on oxide ionic conductors in the systems 1. A-A'-M-M'-O (A=Na or K;A'=Ca or Sr;M=Ti or Zr;M'=Nb or Ta) 2. ARNbO₆(R=Rare earth) and 3.Ce_{1-x}Sm_xO₂- Their structure, microstructure and electrical properties”.

Guide: Prof. V K Vaidyan, Professor and Head (Rtd), Dept. of Physics,University of Kerala
Dr. Peter Koshy (co guide), Scientist F, RRL (NIIST)-CSIR, Pappanamcode,
Thiruvananthapuram

University: University of Kerala

Work experience

| Sl. No. | Positions held | Name of the Institute | From | To |
|---------|----------------------|-------------------------|-----------|----------|
| 1 | Assistant Professor | Govt. College for Women | 10-2-2011 | till |
| 2 | Scientific Assistant | Forensic Science Lab | 7-7-2010 | 9-2-2011 |
| 3 | Teacher | Govt.VHSS | 6.8.2007 | 6-7-2010 |

Research guidance:

Research scholars

| Sl.No. | Name | Awarded/Submitted |
|--------|-------------------|-------------------|
| 1 | ChitraPriya N S | Submitted |
| 2 | Bhagyalekshmi G L | |
| 3 | Neethusha A P | |
| 4 | Sandhya K | |
| 5 | Archana L S | |
| 6 | Aswathy P K | |
| 7 | Revathi J S | |

| | | |
|---|-------------------|--|
| 8 | Sreejaya T S (PT) | |
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Research projects under taken

| Name of the project | Amount | Funding agency and Period | Status |
|---|-----------------|-----------------------------|-----------|
| Development of tri and tetra valent ions doped Ceria based nanoelectrolytes for Solid Oxide Fuel Cell application | Rs. 17,60,000/- | SERB-EMR (2018) (36 months) | On going |
| Synthesis and characterization of nanocrystalline Gd doped CeO ₂ electrolyte for SOFC application | Rs. 1,75,000/- | UGC (2013) (18 months) | Completed |

Areas of Research: Development of nanomaterials for energy application -Development of electrolyte and electrode materials for solid oxide fuel cell application, Synthesis of novel nanophosphors for solid state lighting, bioimaging and biosensing application.

Invited talk:

1. “Nanomaterials for energy application”, National seminar on Materials Science and Characterization, Govt. College, Nedumangad, December, 2015.
2. “Materials for clean and green energy”, National conference on Current trends in Materials Science, Christian College , Chengannur, March, 2016.

Any other Information:

- Experience in X ray spectra analysis, scanning electron microscopic analysis and Impedance spectroscopy analysis.
- Hand on experience in Photoluminescent spectrometer and UV Vis spectrophotometer.
- Co-ordinator, National conference on “New Dimensions in Materials Science” sponsored by Director, Collegiate education, Govt. of Kerala, at Govt. College for Women, Thiruvananthapuram on 15th & 16th December, 2011.
- MSc project guidance – more than 15.

Papers published

1. Bhagyalekshmi G L, Neethusha A P, **Deepthi N Rajendran**, Synthesis, characterization and photoluminescence properties of Ce³⁺ doped ZnO nanophosphor, IOP Conf. Series: Materials Science and Engineering **360** (2018) 012005
2. Neethu Sha A P, Bhagyalekshmi G L, **Deepthi N Rajendran**, Synthesis and characterization of P₂O₅ doped ZnO, IOP Conf. Series: Materials Science and Engineering **360** (2018) 012006
3. Sandhya K, Chitra Priya N S, **Deepthi N Rajendran**, Synthesis and characterization of ceria co-doped with samarium(Sm) and antimony: a potential candidate as a solid electrolyte for intermediate temperature solid oxide fuel cells, IOP Conf. Series: Materials Science and Engineering **360** (2018) 012021

4. Archana L S, **Deepthi N Rajendran**, Structural and optical properties of Ce³⁺-doped ZnS nanoparticles, *Adv.Sci.Let.*24,8(2018) 5994-5999
5. Chitra Priya N S, Sandhya K, **Deepthi N Rajendran**, Structure, morphology and dielectric properties of Gadolinium doped Ceria co-doped with Bismuth (III) ions, *Rev. Adv. Mater. Sci.*, 52 (2017) 43-48
6. Chitra Priya N S, Sandhya K, **Deepthi N Rajendran**, Study on Electrical conductivity and Activation energy of doped Ceria nanostructures, *Electrochem. Energy Technol.*, 3 (2017) 49-53
7. Bhagyalekshmi G. L., Neethusha A. P., **Deepthi N. Rajendran**, Temperature Independent Photoluminescence Response In ZnO:Ce Nanophosphor, *Bull. Mater. Sci.* 40(2017)1429-1434
8. Sandhya K, Chitra Priya N S, Aswathy P K, **Deepthi N Rajendran**, Enhanced structural and electrical properties due to the effect of co-doping ceria electrolyte, *AIP Conference Proceedings*,1849 (2017)
9. N S Chitra Priya, K Sandhya, P K Aswathy, **Deepthi N Rajendran**, Sb³⁺ and Gd³⁺ co-doped Cerium oxide Nanocrystalline Ceramic system: Structural and Dielectric Studies, *Materials Today: Proceedings*, 00 (2018) 0000–0000 (accepted manuscript)
10. Sandhya K, Chitra Priya N S, Aswathy P K, **Deepthi N Rajendran**, Electrical properties of rare earth doped ceria electrolyte for solid oxide fuel cell applications, *Materials Today: Proceedings*, 00 (2018) 0000–0000 (accepted manuscript)
11. Aswathy. P. K , Chitra Priya N S, Sandhya K, **Deepthi. N. Rajendran**, Structural transformations on transition metal doped Sm₂O₃ nanomaterials, *Materials Today: Proceedings*,00 (2018) 0000-0000 (accepted manuscript)
12. Bhagyalekshmi G. L., Neethusha A. P., **Deepthi N. Rajendran**, Excitation of Intra-4f shell luminescence of Cerium ions by the energy transfer from Zn nanocrystals, *Nano Trends: A Journal of Nanotechnology and Its Applications*19(2017)32-42
13. Chitra Priya N S, Sandhya K, Deepthi N Rajendran, Facile synthesis of Ceria Based Ceramic Nanorods by Citrate gel route, *Journal of Ultrascientist of Physical Science*, 29,12 (2017) 356-361
14. Bhagyalekshmi G. L., Neethusha A. P., **Deepthi N. Rajendran**, Investigation on phase transformation of TiO₂ nanoparticles with different annealing temperatures, *Inte. J. Adv.Res. Sci. Eng.*, 6, 3(2017) 16-21, *IJARE*, ISSN 2319-8354

15. Neethusha A. P., Bhagyalekshmi G. L., **Deepthi N. Rajendran**, Structural and morphological characterisation of doped ZnO, *Inte. J. Adv.Res. Sci. Eng.*, 6, 3(2017) 43-48, *IJARE*, ISSN 2319-8354
16. Sandhya K, Chitra Priya N S, Aswathy P K, **Deepthi N Rajendran**, Impact of reduced sintering temperature on the grain size of samarium doped ceria electrolyte, *Inte. J. Adv.Res. Sci. Eng.*, 6, 3(2017) 43-48, *IJARE*, ISSN 2319-8354
17. ChitraPriyaNS, Sandhya K, **Deepthi N Rajendran**, Modification of Structural and Electrical Properties of GDC with Sb^{3+} Ions, *Nano Trends: A Journal of Nanotechnology and Its Applications*18(2016)27-35
18. Chitra Priya N S, Sandhya K, **Deepthi N Rajendran**, Influence of B^{3+} ion on electrical properties of Gadolinium doped Ceria, *Inte. J. of Eng. Trends and Tech.*, 37, 4 (2016) 184-188 (*IJETT*) (ISSN: 2231-5381).
19. Sandhya K., Chitra Priya N.S, **Deepthi N. Rajendran**, Shabeer T K, Nano Crystalline Thin-Film Electrolyte For Solid Oxide Fuel Cell Application: A Brief Review, *Inte. J. of Inn. Res. Adv. Studies*, 3,7 (2016) 251 (ISSN: 2394-4404)
20. Sandhya.K, Chitra Priya N.S., **Deepthi.N.Rajendran**, Nano Crystalline Electrolyte as a best potential candidate for Solid Oxide Fuel Cell application and its current Status, "Inter. J. of Eng. Trends Tech. 37,7 (2016) 400(*IJETT*) (ISSN: 2231- 5381)
21. Chitra Priya N.S., **Deepthi.N.Rajendran**, Sandhya.K, Structural modification of ceria electrolyte with gadolinium (III) doping, *Echoes of research*, Vol. 5 (2016) 25-30, ISSN 2348-2680
22. Bhagyalekshmi G. L., Neethusha A. P., **Deepthi N. Rajendran**, Pr doped ZnO nanophosphors by combustion method: structural and optical properties study, *Echoes of research*, Vol. 5 (2016) 31-39, ISSN 2348-2680
23. **Deepthi N Rajendran**, K Ravindran Nair, P Prabhakar Rao, K S Sibi, Peter Koshy, V K Vaidyan, Ionic conductivity in new perovskite type oxides: $NaAZrMO_6$ (A=Ca or Sr; M=Nb or Ta), *Mater. Chem. Phys.* 109(2008)189-193
24. **Deepthi N Rajendran**, K Ravindran Nair, P Prabhakar Rao, K S Sibi, Peter Koshy, V K Vaidyan, New perovskite type oxides: $NaATiMO_6$ (A=Ca or Sr; M=Nb or Ta) and their electrical properties, *Mater. Lett.* 62(2008)623-628

Conference proceedings:

1. Luminescence enhancement and energy transfer in $ZnTiO_3$ metallic nanocomposite, Bhagyalekshmi G L, Neethusha A P, **Deepthi N Rajendran**, National conference on Luminescence and its application, NIIST, Thiruvananthapuram, 14th-16th February, 2018

2. Photoluminescence activity of Bi³⁺ doped ZnO prepared by combustion synthesis, Neethusha A P, Bhagyalekshmi G L, **Deepthi N Rajendran**, National conference on Luminescence and its application, NIIST, Thiruvananthapuram, 14th-16th February, 2018
3. Preliminary studies on luminescence of cobalt doped nanoparticles, P K Aswathy, **Deepthi N Rajendran**, National conference on Luminescence and its application, NIIST, Thiruvananthapuram, 14th-16th February, 2018
4. Luminescent properties of doped ceria nanophosphors, Chitra Priya N S, Sandhya K, **Deepthi N Rajendran**, National conference on Luminescence and its application, NIIST, Thiruvananthapuram, 14th-16th February, 2018
5. Effect of Sb doping on structural and electrical properties of doped ceria solid electrolyte, Chitra Priya N S, Sandhya K, **Deepthi N Rajendran**, Second International Conference on Electrochemical Science and Technology, IISc, Bengaluru, INDIA, August 10-12, 2017
6. Structural Properties of Co⁴⁺ Doped Sm₂O₃ Cathode Materials, Aswathy. P. K, Chitra priya N.S, **Deepthi. N. Rajendran**, Eleventh International Symposium on Advances in Electrochemical Science and Technology (ISAEST-11). Chennai, India, 08-10 Dec. 2016.
7. Structural and Optical Investigation of Sm Doped TiO₂ Nanophosphors, Bhagyalekshmi G L, Neethusha A P, **Deepthi N Rajendran**, National seminar on theoretical and Experimental Physics (NSTEP), Govt. College for Women, Thiruvananthapuram, 7-9 Dec 2016
8. Solution Combustion Synthesis of Co⁴⁺ doped Sm₂O₃ nano particles, Aswathy P K, **Deepthi N Rajendran**, National Seminar on Photonics, Medicine & the Environment, All Saints' College Thiruvananthapuram, 22, 23 June 2016
9. Synthesis, characterization and photoluminescence properties of Ce³⁺ doped ZnO nanophosphor, Bhagyalekshmi G L, Neethusha A P, **Deepthi N Rajendran**, Second International Conference on Material Science and Technology (ICMST), St. Thomas College, Palai 5-8 June 2016
10. Effect of Bi³⁺ dopant on Structural and Electrical properties of Gadolinium doped Ceria, Chitra Priya N S, Sandhya K, **Deepthi N Rajendran**, Second International Conference on Materials Science and Technology, St. Thomas College, Palai, 5-8 June 2016.
11. Synthesis and characterization of P₂O₅ doped ZnO, Neethu Sha A P, **Deepthi N Rajendran**, Second international conference on material science and technology, St. Thomas College Palai, 5-8 June 2016
12. Synthesis and Characterization of ceria co-doped with Samarium (Sm) and Antimony: a potential candidate as a solid electrolyte for intermediate temperature solid oxide fuel cells, Sandhya K, Chitra Priya N S, **Deepthi N Rajendran**, Second International Conference on Material Science held at St. Thomas College, Palai 5-9, June 2016
13. Synthesis and characterization of ZnS nanoparticle prepared by solid state reaction method, Archana.L.S, Deepthi.N.Rajendran, National conference on current trends in materials science (CTMS-2016), Christain college, Chengannur, Kerala, 28-30, March 2016

14. Structural and optical properties of Ce doped ZnO nanoparticles synthesised by solid state reaction method, Bhagyalekshmi G L, Neethusha A P, **Deepthi N Rajendran**, Fourth international conference on frontier in nano science and technology, CUSAT, Ernakulam 20-23 Feb 2016
15. Synthesis and characterization of Ba doped ZnO nano particles ,Neethu Sha A P, **Deepthi N Rajendran**, Fourth international conference on frontier in nano science and technology, CUSAT, Ernakulam, 20-23 Feb 2016
16. Effect of B³⁺ dopant on Structural properties of Gadolinium doped Ceria, Sandhya K ChitraPriya N S, **Deepthi N Rajendran**, Second Indo-Canadian Symposium on Nano-Science and Technology at NIE, Mysuru, 18-19 Feb. 2016.
17. Preparation and charecterization of Ce doped ZnO nanophosphor, Bhagyalekshmi G L, Neethusha A P, **Deepthi N Rajendran** National Seminar on material science and Charecterization, Govt.College Nedumangad, Kerala, 14-16,Dec 2015
18. Structural and optical studies of Ce doped ZnO nanophosphor by combustion method, Bhagyalekshmi G L, Neethusha A P, **Deepthi N Rajendran**, National seminar in Advanced Material Science, Govt.College for Women,Trivandrum, 3-4 Dec. 2015
19. Synthesis of Ce_{0.9}Sm_{0.1}O_{2-δ} by Solid State Reaction for low temperature solid oxide fuel cell (SOFC) applications, Sandhya K, ChitraPriya N S, **Deepthi N Rajendran**, National seminar in Advanced Material Science, Govt.College for Women Trivandrum,3-4 Dec. 2015
20. Characterisation of Nano-crystalline Ce_{0.8}Gd_{0.2}O_{2-δ} Prepared by Solution Combustion Synthesis, ChitraPriya N S ,Sandhya K, **Deepthi N Rajendran**, National seminar on Advancements in Material Science, Govt. College for Women, 3 - 4, Dec. 2015
21. Structrural Studies of Gd doped Ceria (GDC) Nanoelectrolyte doped with B³⁺ ions ChitraPriya N S ,Sandhya K, **Deepthi N Rajendran**, National seminar on Perspectives of Raman Spectroscopy, St. Johns College, Anchal, 15 - 16 Oct. 2015.
22. Rare earth doped nanophosphor for solid state lighting, Bhagyalekshmi G L, **Deepthi N Rajendran**, National seminar on Recent and Emerging advances in Chemical science, 2015
23. Combustion synthesis for nanophosphor materials, Neethusha A P, **Deepthi N Rajendran**, National seminar on Recent and Emerging advances in Chemical science, 2015
24. Studies On The Effect Of Bi³⁺ Dopant On Gd Doped Ceria (Gdc) Nanoelectrolyte, ChitraPriya N S , **Deepthi N Rajendran**, National seminar on New Frontiers in Physics- Scope and Challenges, St. Xaviers college, Thumba, Thiruvananthapuram, Kerala, 28-30 Oct.2014.
25. Structural and optical properties of Zn doped nickel oxide nanoparticles, **Deepthi N Rajendran**, Suchithra V G, Remya G, , International conference on perspectives in vibrational spectroscopy,2013