

## ST GREGORIOS COLLEGE, KOTTARAKARA

### FACULTY PROFILE

NAME	<b>Lt. Dr. Indulal C.R.</b>		
DEPARTMENT	Physics		
DESIGNATION	Assistant Professor		
ADDRESS	Vipanchika, Venmannoor, Anakotloor PO, Ezhukone (Via), Kottarakara, Kollam, Kerala, India-691 505		
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ACADEMIC QUALIFICATIONS (with name of degree awarding University)	PhD (University of Kerala), MSc Physics (MG University, Kottayam), BEd (Physical Science- University of Kerala), GDIT, CWHM (IGNOU)		
TEACHING EXPERIENCE	6 years - as assistant professor in collegiate education; 11 years' experience as HSST in Higher Secondary Education		
SPECIALIZATION	Material science (Nanomaterials, Thin films, Crystal Growth) Citation Network Analysis Nano fluids and fluid dynamics Physical and chemical studies on Archaeological objects		
PUBLICATIONS/ PARTICIPATION IN SEMINARS/ CONFERENCES ETC (Please attach a separate detailed list with titles of papers, names of conferences, etc)		INTERNATIONAL	NATIONAL
	NO. OF RESEARCH PAPERS IN JOURNALS	<b>10</b>	<b>1</b>
	NO. OF PUBLICATIONS IN CONFERENCE PROCEEDINGS	<b>17</b>	<b>30</b>
	NO. OF CONFERENCES PARTICIPATED IN	<b>1</b>	<b>1</b>
PROJECTS	Successfully completed 5 Student Projects funded by KSCSTE		
DETAILS OF RESEARCH SUPERVISION	NO OF STUDENTS AWARDED PHD : Nil NO. OF STUDENTS WITH SUBMITTED DISSERTATIONS: Nil NO. OF CURRENT STUDENTS: One		
HONOURS AND AWARDS	Nil		
POSTS HELD	Associate NCC Officer		
ANY OTHER INFORMATION	<b>Research Collaborations:</b> "Kerala Megalithic Gazetteer Project" and project entitled 'Archaeological Excavation at Navinal in Mundra Jaluka, Distict Kachchh and Exploration in Kachchh District, Gujarat' (2016-2021) with Dr. Rajesh S.V., Head and Assistant professor, Department of Archaeology, University of Kerala, Kariavattom Campus, Thiruvananthapuram		

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## **RESEARCH PAPERS IN JOURNALS**

### **International**

1. Indulal C R, Sajeev Kumar G, Vaidyan A V and Raveendran R, *Characterization, dielectric and optical studies of cerium molybdo tungstate nano particles*, *Indian Journal of Pure and Applied Physics*, 48, 2010, 893-898.
2. Indulal C R, Vaidyan A V, Sajeev Kumar G and Raveendran R, *Characterization, dielectric and optical studies of nano-cerium phospho iodate synthesized by chemical co- precipitation method*, *Indian Journal of Engineering and Material Science*, 17(4), 2010, 299-304.
3. Indulal C R and Raveendran R, *Synthesis, characterization and dielectric studies of cerium phospho iodate and cadmium doped cerium phospho iodate in the nano form*, *Indian Journal of Pure and Applied Physics*, 48, 2010, 121-126
4. Indulal C R, Vaidyan A V, Sajeev Kumar G and Raveendran R, *Electrical conductivity and ion exchange studies of nano sized cerium (IV) Tungsto iodate — A new cation exchanger*, *Indian Journal of Chemical Technology*, 18(6), 2011, 488-490.
5. Indulal C R, Vaidyan A V, Sajeev Kumar G and Raveendran R, *A Comparative Study - The Ion Exchange Properties of Nanosized Cerium Molybdo Iodate and Cerium Phospho Iodate*, *Oriental Journal of chemistry*, 27 (4), 2011, 1755-1758.
6. Indulal C R, Sajeev Kumar G, Vaidyan A V and Raveendran R, *Oxide Nanostructures- Characterization and optical bandgap evaluations of Cobalt-Manganese and Nickel-Manganese at different temperatures*, *Journal of Nano-Electron Physics*, 3, 2011, 170-178.

7. Indulal C R and Raveendran R, *A study on the temperature dependence of particle size and dielectric properties of Cerium Molybdo Tungstate nano particles*, *Material Science Research India*, 65(2), 2009, 537-543.
8. C R Indulal, R Biju, Deepak Nand and R Raveendran, Structural, Optical Studies of Zinc Magnesium Oxide and Zinc Copper Oxide Nanocomposites, *International Journal of advance research in Science and Engineering*, ISSN(O):2319-8354, ISSN(P): 2319-8346, Volume: 6, Special issue no: 03, September 2017, AFM-2017
9. C R Indulal, R Biju, Deepak Nand and R Raveendran, Dielectric and Optical Band Gap Studies of Nanostructured Manganese Nickel Oxide and Cobalt Nickel Oxide, *ORIENTAL JOURNAL OF CHEMISTRY*, ISSN: 0970-020 X, 2017, Vol. 33, No. (3): Pg.1581-1588
10. C R Indulal, R Biju, Deepak Nand and R Raveendran, Optical and Antibacterial Studies of Zinc Magnesium Oxide Nanocomposite, *ORIENTAL JOURNAL OF CHEMISTRY*, ISSN: 0970-020 X, 2017, Vol. 33, No. (3): Pg. 1545-1549

#### **National**

1. Indulal C R, Vaidyan A V, Sajeev Kumar G and Raveendran R, *A comparative study- the effect of doping on the nano-structure and optical band gap of cerium molybdo iodate and cerium phospho iodate*, *Edu VISION, Inter-disciplinary research journal*, S.N.College, Chengannur, 2010, 159-165.

#### **Conference (International)**

1. C.R. Indulal, R. Ravikumar, R. Biju, M. Akhil and Kichu Suresh, Optical and Photocatalytic Studies of Zinc Strontium Oxide Nanocomposite for Technological Applications, *AIP Conference Proceedings* 2100, 020057 (2019) Published Online On 25 April 2019
2. C.R. Indulal, R. Biju, M. Akhil and R. Ravikumar, Comparative Study in the Optical Bandgaps of Cadmium Copper Oxide and Strontium Copper Oxide Nanocomposites, *AIP Conference proceedings* 2100, 020080 (2019) Published Online On 25 April 2019
3. R. Biju, R. Ravikumar, Vishnu.S.Surendran, C.R.Indulal and Deepak Nand, Optical bandgap evaluation of copper based heterogeneous nanocomposites for selective future applications, *AIP Conference Proceedings* 2220, 020022 (2020) Published Online On 05 May 2020

4. R. Biju, C.R.Indulal, R. Ravikumar and Deepak Nand, A comparative study in the photocatalytic degradative power of copper nickel oxide nanocomposite annealed at different temperatures , AIP Conference Proceedings 2200, 020015 (2020) Published Online On 05 May 2020
- 5) Vishnu S.Surendran, B.Bindhu and C R Indulal, Enhancement of the optical properties of fluorinated boron nitride nanosheets, AIP Conference Proceedings 2220, 020016 (2020)
6. Indulal C R, Sajeev Kumar G, Raveendran R, Vaidyan A V, *Dielectric and optical band gap studies of Cobalt-Manganese oxide nanoparticles at different temperatures, IEEE 4th International Nanoelectronics Conference (INEC)*, Tao-Yuan, Taiwan, 2011, 29.
7. Indulal C R, Sajeev Kumar G and Raveendran R, *Dielectric Studies of Cerium Molybdo Tungstate in the Nano Form* – International conference on active/smart materials organized by Smart Materials Laboratory, Dept. of Physics, Thiagarajar College of Engineering, Madurai, India, 2009.
8. Indulal C R, Vaidyan A V and Raveendran R, *Optical Studies of Cerium Based Protonic Conductors in the Nano Form* – International conference on Active/Smart Materials organized by Smart Materials Laboratory, Dept. of Physics, Thiagarajar College of Engineering, Madurai, India, 2009.
9. Indulal C R, Sajeev Kumar G and Raveendran R, Synthesis, *Characterization and Dielectric studies of Cadmium doped Cerium Molybdo Iodate in the Nano form* – 1<sup>st</sup> International Conference on Nanostructured Materials and Nanocomposites (ICNM-2009) organized by Institute of Macromolecular Science and Engineering (IMSE), Kottayam, Kerala and center for rural Management, Kottayam, Kerala, 2009, 281.
10. Indulal C R, Vaidyan A V and Raveendran R, *Synthesis, Characterization and optical studies of Cadmium doped Cerium Phospho Iodate in the Nano form* – 1<sup>st</sup> International conference on nanostructured materials and nanocomposites (ICNM-2009) organized by Institute of Macromolecular Science and Engineering(IMSE), Kottayam, Kerala and center for rural Management, Kottayam, Kerala, 2009, 282.

11. Indulal C R, Sajeev Kumar G and Raveendran R, *Synthesis, Characterization and Dielectric studies of Aluminium doped Cerium Phospho Iodate in the Nano form* – International conference on advanced functional materials (ICAFM 2009) Organized by NIIST, TVM, 2009, 118.
12. *Synthesis, Characterization and Dielectric studies of Zinc doped Cerium Molybdo Iodate in the Nano form.* Indulal, C. R.; Raveendran, R. 2009, International conference on advanced functional materials (ICAFM 2009) Organized by NIIST, TVM, , 91-92.
13. Indulal C R, Sajeev Kumar G and Raveendran R, *Synthesis, characterization and optical studies of cerium molybdo tungstate nano particles-* International conference on materials for the millennium MATCON-2010, organized by Department of Applied Chemistry, CUSAT, 2010, 101-102.
14. Indulal C R, S Kumar G, Vaidyan A V and Raveendran R, *Chemical Synthesis, Characterization and optical bandgap studies of Nickel-Manganese spinel oxide nanoparticles at different temperatures*, Proceedings of DAE-BRNS, 3<sup>rd</sup> international symposium on Materials Chemistry, organized by Chemistry division, Bhabha Atomic Research Centre, 2010, 240.
15. Indulal C R, Sajeev Kumar G, Vaidyan A V and Raveendran R, *Effect of Thermal Annealing on the Structural and Optical Properties of Nanostructured Cobalt-Manganese and Cobalt-Nickel oxides Prepared by Co-Precipitation Method*, Optics'11, International conference on light, NIIT, Kozhikode, 2011, 149.
16. Indulal C R, Rajesh K R, Melvi Chandy, Pragatheeswaran A and Raveendran R, *Studies on the Optical Properties and Surface Morphology of Thermally Evaporated Nickel (II) 2,9,16,23-Tetraphenoxy-29H,31H- Pthalocyanine Thin Films*, Optics'11, International conference on light, NIIT, Kozhikode, 2011.
17. Indulal, C. R.; Sajeev Kumar, G.; Vaidyan, A. V.; Raveendran, *Oxide Nanostructures- Characterization and optical bandgap evaluations of Cobalt-Manganese and Nickel-Manganese at different temperatures.*, International Symposium on Semiconductor Materials and Devices (ISSMD-2011) organized by Applied Physics Department, Faculty of Technology and Engineering, The MS University of Baroda, Gujarat, India, 190-191.,2011

18. International seminar on Field Archeology on 16-19 January 2017 at Department of Archeology, Kariavattom, Thiruvananthapuram (Participated)

### **Conference National**

1. Indulal C R and Raveendran R, *Synthesis and Characterization of Cadmium doped Cerium Molybdo Tungstate in the Nano form*- National Seminar on Photonic Materials (NSPM 2009) organized by Dept. of Optoelectronics, University of Kerala, TVM, India, 2009, 41.

2. Indulal C R and Raveendran R, *Synthesis, Characterization and Dielectric studies of Cadmium doped Cerium Phospho Iodate in the Nano form* - National Seminar on Photonic Materials (NSPM 2009) organized by Dept. of Optoelectronics, University of Kerala, TVM, India, 2009, 44-45.

3. Indulal C R and Raveendran R, *Synthesis, Characterization and Optical studies of Cerium Phospho Iodate and Aluminium doped Cerium Phospho Iodate in the Nano form*- National conference on Advanced Materials - Processing, characterization and applications, Organized by Centre for Scientific and Applied Research School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tirunelveli, Tamilnadu, India, 2009, 74-75.

4. Indulal C R, Vaidyan A V, Sajeev Kumar G and Raveendran R, *The effect of doping on the nano-structure and optical band gap of Cerium Molybdo Iodate nano-particles synthesized by co-precipitation method*, *Indian Science Congress*, 2010.

5. Indulal C R, Rejith S G, Nicholson A and Raveendran R, *Chemical Synthesis, Characterization and optical bandgap study of cobalt-manganese spinel oxide nanoparticles at different temperatures*, organized by II National conference on Advanced Materials - Processing, characterization and applications, NCAM- 2010, Organized by Centre for Scientific and Applied Research School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tirunelveli, Tamilnadu, India, 2010, 6-10.

6. Indulal C R, Rejith S G, Nicholson A and Raveendran R, *Chemical Synthesis, Characterization and optical bandgap study of cobalt-manganese spinel oxide nanoparticles at different temperatures*, organized by II National conference on Advanced Materials - Processing,

characterization and applications NCAM- 2010, Organized by Centre for Scientific and Applied Research School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tirunelveli, Tamilnadu, India, 2010, 31-32.

7. Indulal C R, Rajesh K R, Sajeew kumar G, Vaidyan A V and Raveendran R, *Structural and Optical studies of Thermally Evaporated Nickel (II) 2,9,16,23-Tetraphenoxy-29H,31H-Pthalocyanine Thin Film*, Proceedings of the National Seminar on Physical and Bio- Medical applications in Nano Technology, 2011, 133-138.

8. Indulal C R and Raveendran R, *Synthesis, Characterization and Optical studies of Cerium Molybdo Iodate in the nano form (PL and FTIR studies)*, National Seminar on Luminescent and Lasing Applications NSLLM-'11 organized by Dept of Physics, St Aloysius College, Edathua, 2011, 44.

9. Indulal C.R., *Synthesis, Optical and Antibacterial activity of Zinc Magnesium Oxide Nanoparticles sintered at 500°C via Microwave method*; National seminar and training on Machine Learning Approaches a new trend in quantum mechanics, Sponsored UGC and KSCSTE, SN College, Chengannur, 4-6 Aug 2015 (Paper presented).

10. Indulal C.R., *Optical and antibacterial activity of Zinc Magnesium Oxide nanoparticles sintered at 300°C via Microwave method*; National Seminar on Green analytical techniques (NASGAT-2015), Sponsored UGC, New Delhi Organized by Dept of Chemistry, D.B College, Sasthamcotta -9-10 Sept 2015 (Poster presented).

11. Indulal C.R., *Optical, Antibacterial and Photo catalytic studies of Zinc Magnesium Oxide nanoparticles prepared through Chemical Co-precipitation method*, National Seminar on Nanomaterials for energy applications (NSNME), Sponsored UGC, Organized by Dept of Physics, SN College, Punalur, 7-8 January 2016

12. Indulal C.R., *Optical band gap study of Zinc Magnesium Oxide Nanoparticles prepared by chemical co-precipitation method*, National Seminar Perspectives in Raman Spectroscopy, Sponsored UGC, Organized by Dept of Physics, St. Johns College, Anchal, 15-16 Oct 2015.

13. Indulal C.R., *Zinc Manganese Oxide-A wide optical band gap Nanomaterial prepared by co-precipitation method*, National Seminar Perspectives in Raman Spectroscopy, Sponsored UGC, Organized by Dept of Physics, St. Johns College, Anchal, 15-16 Oct 2015.

14. Indulal, C. R.; Pranav, P.; Merin Varghese.; Subina, N.; Beena,M.; Dedhila, D.; Biju, R.; Raveendran, R. *Structural and Optical properties of Zinc Magnesium Oxide Nanoparticles at different temperatures.*, National Seminar on Nanoscience and Nanotechnology, Sponsored UGC, New Delhi Organized by Dept of Physics, Sree Narayana College, Sivagiri, Varkala. 2015
15. Indulal, C. R.; Babith, B.; Ruby, S. G.; Sajeera, S. R.; Dedhila, D.; Biju, R.; Raveendran, R. *Synthesis, Optical and Antibacterial activity of Zinc Magnesium Oxide Nanoparticles sintered at 500°C.*, National Seminar on Nanoscience and Nanotechnology, Sponsored UGC, NewDelhi Organized by Dept of Physics, Sree Narayana College, Sivagiri, Varkala, 2015
16. C R Indulal, R Biju, Deepak Nand and R Raveendran, *STRUCTURAL, OPTICAL STUDIES OF ZINC MAGNESIUM OXIDE AND ZINC COPPER OXIDE NANOCOMPOSITES*, National seminar on advances in functional materials, AFM-20174, 19-20 september 2017, organized by All saints college, Department of Physics, Thiruvananthapuram, Sponsored by KSCSTE.
17. C R Indulal, R Biju, Deepak Nand and R Raveendran, *A COMPARATIVE STUDY IN THE STRUCTURAL, SURFACE MORPHOLOGICAL AND OPTICAL BAND GAPS OF ZINC MAGNESIUM OXIDE AND ZINC MANGANESE OXIDE NANOCOMPOSITES*, National seminar on recent trends in advanced chemistry research (RTACR -2017), 25-26 May 2017, SN College, Department of Chemistry, sponsored by DST (SERB) and KSCSTE
18. R Biju, C R Indulal, Dedhila Devadathan, Deepak Nand, *Photocatalytic Degradation Studies of an Organic Dyes and Organic Indicator Using CuO/ZnO Nanocomposite Synthesized using Co-precipitation Method*, National Symposium (ITCER), March 22-24, PG & Research Department of Chemistry Sree Narayana College, Kollam
19. R Biju, CR Indulal, Deepak Nand., *SURFACE MORPHOLOGICAL AND OPTICAL STUDIES OF CHEMICALLY SYNTHESIZED COPPER BASED NANOCOMPOSITES*. National seminar on FRONT LINE APPROACHES IN MATERIAL SCIENCE AND COMPUTATIONAL CHEMISTRY, MATCOM-2018 march 14 -16, 2018 department of chemistry SNCW Kollam
20. National seminar on nanomaterials for energy applications 7-8 January 2016 at Dept of Physics, SN College, Punalur.
21. R. Ravikumar, R. Biju and C. R. Indulal, *Photocatalytic Degradation of Methyl Orange Dye using Strontium Copper Oxide Nanocomposite*, National Conference on Functional Materials, NCFM-2020, 24 February 2020, organized by Department of Physics, Noorul Islam Centre For Higher Education, Kumaracoil, Kanyakumari, Tamil Nadu.

22. C. R. Indulal, R. Biju and R. Ravikumar, *Optical Bandgap Studies of Heterogeneous Copper Oxide Nanocomposites*, National Seminar on Spectroscopic Techniques: Present Scenarios [Second Edition NSST 2020], 31 January 2020, organized by Department of Physics, TKMM College, Nangiarkulangara, Kerala.
23. C R Indulal, R Biju, Deepak Nand and R Raveendran, *Industrial dye degradation using a novel hetero structured copper oxide/cadmium oxide nanocomposite.*, 30<sup>th</sup> kerala science congress government brennen college thalaserry 28-30 January 2018
24. R Biju, C.R Indulal, Deepak Nand and R Raveendran *Structural and optical bandgap studies of strontium copper oxide and strontium zinc oxide nanocomposites.*, 30<sup>th</sup> kerala science congress government brennen college thalaserry 28-30 January 2018
25. Indulal C R, Sajeev Kumar G and Raveendran R, *Synthesis, Characterization and Dielectric Properties of Nano sized Cerium Molybdo Iodate* – Proceedings of the 21<sup>st</sup> Kerala Science Congress organized by Tropical Botanic Garden and Research institute, Palode, TVM and Kerala Minerals and Metals Ltd, Kollam, 2009, 762-764.
26. Indulal C R, Sajeev Kumar G, Vaidyan A V and Raveendran R, *A comparative study of the dielectric properties of Cerium molybdo iodate and zinc doped cerium molybdo iodate in the Nano form* – Proceedings of the National seminar on Recent Advances in Nano Science and Technology, organized by Dept.of Physics, S.N.College, Kollam, 2009, 47-56.
37. Indulal C R, Sajeev Kumar G and Raveendran R, *Study of the variation of particle size and optical band gap of pure and zinc doped cerium molybdo iodate nanoparticles*, organized by Kerala Forest Research Institute, Peechi, Proceedings of the 22<sup>nd</sup> Kerala Science Congress, 2010, 899-900.
28. Indulal C R, Sajeev Kumar G and Raveendran R, *The effect of doping in the nano-structure and optical band gap of Cerium phospho iodate (CPI) nano-particles synthesized by co-precipitation method*, organized by Kerala Forest Research Institute, Peechi, Proceedings of the 22<sup>nd</sup> Kerala Science Congress, 2010, 925-926.
29. Indulal C R, Sajeev Kumar G, Vaidyan A V and Raveendran R, *Structural, Mechanical and Dielectric studies of 0.03M zinc doped cerium phospho iodate nanoparticles.*, , souvenir and

book of abstracts of 21<sup>st</sup> Swadeshi Science Congress organized by, The cashew export promotion council of India, 2011, 160.

30. Indulal C R, Sajeev Kumar G, Vaidyan A V and Raveendran R, *Mechanical, optical and ion exchange studies of Cerium Molybdo Tungstate nanoparticles*, organized by Rubber Research Institute of India, Kottayam, Proceedings of the 24<sup>th</sup> Kerala Science Congress, 2012, 699-701.

31. C R Indulal, R Biju, Deepak Nand and R Raveendran *Structural and optical band gap studies of copper cadmium oxide and copper manganese oxide nanocomposites*, Inter disciplinary approaches in materials and biological research (IAMBR-2018) February 16-17 2018 MG college, Kesavadasapuram

1. Indulal C R, Melvi Chandy, Pragatheeswaran A, Rejith S G and Raveendran R, *Optical bandgap and Dielectric studies of Manganese Zirconium Oxide*, 23<sup>rd</sup> Kerala Science Congress, organized by Center for Earth Science Studies, Thiruvananthapuram, 2011, 244 (Participated).