Dr. S. DINAKARAN
Assistant Professor
Department of Physics
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Education

- **Ph. D in Physics,** University of Madras, Chennai. August, 2010
- **M.Phil in Physics,** University of Madras, Chennai, September, 2006.
- **M.Sc Physics,** Annamalai University, Chidambaram, May, 2005
- **B.Sc. Physics,** Manonmaniam Sundaranar University, Tirunelveli May, 2003.

Credentials

- **State Eligibility Test (SET)** for Assistant Professor on April 2017 conducted by Mother Teresa Women's University, Kodaikanal, Tamil Nadu.

Professional Experience

- **Assistant Professor**, Department of Physics, St. Joseph's College (Autonomous), Trichy, from June 2016 to Till date.
- **Assistant Professor**, School of Advanced Sciences, VIT University, Vellore, from July 2013 to June 2016
- **Post Doctoral Research Associate**, LED IT Fusion Technology Research Centre, Yeungnam University, South Korea, from July 2011 to June 2012.
- **Lecturer**, Prathyusha Institute of Technology and Management, Tiruvallure, from October 2010 to June 2011.

Courses Handled

- Mathematical Physics, Quantum Mechanics, Electromagnetic Theory, Electromagnetism, Astrophysics, Physics for competitive Examination- St. Joseph's College, Tiruchirappalli
- Modern Physics, Semiconductor Device Physics and Engineering Physics – VIT University, Vellore
- Engineering Physics –I and Engineering Physics-II – Prathyusha Institute of Technology and Management, Tiruvallure,

Fields of Research Interest

- Phosphors for lighting applications
- Semiconductor thin films
- Electrical modeling on solar cells

Research Projects

1. Investigations on turning the luminescence of molybdate phosphors for WLED applications, UGC-DAE CSR, New Delhi, Rs. 1,35,000/- (2023).
2. Investigations of Silicate phosphors as colour converters for the fabrication of White LEDs, SJCRG, St. Joseph's College (Autonomous), Tirucirappalli, Rs. 65,000/- (2023).

Medals/Fellowship Awarded

- Academic Proficiency winner in M.Phil degree programme.
- Senior research Fellowship from CSIR, India in October 2008.

List of publications (International Peer reviewed)

1. Amutha Soosairaj, Alex Arunmozhi A, Durga Prasad Pabba, **S. Dinakaran**, Leo Rajesh A, (2024) "*Unravelling the effect of soxhlet extracted Pisolithus arhizus fungi in bio-sensitized solar cells in response to diverse polar solvents*", Optical Materials 155, pp.115891.
2. **S. Dinakaran**, G. Cynthia Jemima Swarnavalli, A. Anto Catherin Jino, S. R. Meher, (2024) "*Numerical Simulation Approach for an Investigation of Critical Parameters of ZTO Bufer Layer for CZTS Photovoltaic Cell Performance: A One-Dimensional Modeling*" Journal of Electronic Materials, 53, pp. 5314–5325.
3. G. Cynthia Jemima Swarnavalli, **S. Dinakaran** (2021) "*Morphology Controlled Synthesis of Zinc Oxide Nanostructures Through Millettia pinnata (MP) Leaf Extract as Capping Agent and its Photocatalytic Degradation Efficiency of a Textile Dye*" Journal of Cluster Science, 32, pp.1585–1592.
4. G.C.J. Swarnavalli, **S. Dinakaran**, S.Krishnaveni, G.M.Bhalerao, (2019) "*Rapid one pot synthesis of Ag/ZnO Nanoflowers for visible light degradation of nitrobenzene*", Materials Science and Engineering B, 247, pp. 114376.
5. **S. Dinakaran,** S. R. Meher, G. Cynthia Jemima Swarnavalli (2019) "*One dimensional modeling for an investigation into parameter optimization, crossover and red-kink behavior of ZnMgO buffer layer Cd-free Cu(In,Ga)Se2 solar cell*" Applied Physics A Mat. Sci. & Proc.,125, pp.399.
6. G. Cynthia Jemima Swarnavalli, **S. Dinakaran**, N. Raman, R. Jegadeesh, Carol Pereira (2017) "Bio inspired synthesis of monodispersed silver nano particles using Sapindus emarginatus pericarp extract – Study of antibacterial efficacy" Journal of Saudi Chemical Society, 21, pp.172-179.
7. G. Cynthia Jemima Swarnavalli, **S. Dinakaran**, S. Divya (2016) "*Preparation and characterization of nanosized Ag/SLN composite and its viability for improved occlusion"*, Applies Nanoscience, 6, pp.1065-1072.
8. **S. Dinakaran**, Sunil Verma, S.Jerome Das, (2011) "*Solubility, crystal growth, morphology, crystalline perfection and optical homogeneity of lithium*

paranitrophenolate trihydrate, a semiorganic NLO crystal", Cryst. Eng. Comm. 13, pp. 2375-2380.

9. **S. Dinakaran**, Sunil Verma, S.Jerome Das, S.Kar, K.S.Bartwal, (2011) "*Determination of crystalline perfection, optical indicatrix, birefringence and refractive index homogeneity of ZTS crystals*", Applied Physics B, Laser and optics, 103, pp.345-349.
10. J. Mary Linet, **S. Dinakaran**, S. Jerome Das, (2011) "Optical and microhardness studies on unidirectional grown triaqua glycine sulfato zinc (II): A semiorganic NLO crystal", *Journal of Alloys and Compounds, 509, 9, 3832-3836.*
11. **S. Dinakaran**, Sunil Verma, S.Jerome Das, S.Kar, K.S.Bartwal, (2010) "*Influence of forced convection on unidirectional growth of crystals*", Physica B Condensed Matter (405) 3919–3923.
12. **S. Dinakaran**, Sunil Verma, S. Jerome Das, G. Bhagavannarayana, S. Kar, K.S. Bartwal, (2010) "*Investigations of crystalline and optical perfection of SHG oriented KDP crystals*", Applied Physics A, 99, pp. 445-455.
13. **S. Dinakaran**, S. Verma, S. Jerome Das, S. Kar, K. S. Bartwal, (2010), "*Optical imaging of the growth kinetics and polar morphology of zinc tris(thiourea) sulphate single crystals*",Crystal Research Technology, 43, pp. 233-238.
14. **S. Dinakaran**, Sunil Verma, S. Jerome Das, S. Kar, K. S. Bartwal, P. K. Gupta, (2010), "*Investigations for obtaining enhanced SHG element of KH_2PO_4 crystal*", Physica B: Condensed Matter, 405, pp. 1809-1812.
15. K. Sugandhi, **S. Dinakaran**, M. Jose, R. Uthrakumar, A. Jeya Rejendran, G. Bhagvannarayana, V. Joseph, S. Jerome Das, (2010), "*Crystalline perfection, spectroscopic investigations and transport properties of trisglycine zinc chloride NLO single crystal*", Physica B: Condensed Matter, 404, 18, 3929-3935.
16. R. Robert, C. JustinRaj, S. Krishnan, R. Uthrakumar, **S. Dinakaran**, S. Jerome Das, " *Spectral, optical and mechanical studies on L-histidine hydrochloride monohydrate (LHC)single crystals grown by unidirectional growth technique*", Physica B: Condensed Matter, 405 (2010) 3248–3252.
17. **S. Dinakaran**, Sunil Verma, C. Justin Raj, J. Mary Linet, S. Krishnan, S. Jerome Das, (2009), "*Growth of a bulk organic single crystal of benzoylglycine by the unidirectional crystal growth method*", Crystal Growth and Design, 9, pp 151 – 155.
18. J. Mary Linet, **S. Dinakaran**, S. Mary Navis Priya, and S. Jerome Das, (2009) "*Growth and characterization of pure and Hg^{2+} doped thiosemicarbazide cadmium chloride crystals*", Crystal Research Technology, 44, pp. 173 – 176.
19. C. Justin Raj, S. Krishnan, **S. Dinakaran**, J. Mary Linet, R. Uthrakumar, R. Robert, S. Jerome Das, (2009), "*Growth, optical, mechanical, dielectric and theoretical studies on potassium pentaborate tetrahydrate ($KB_5O_8.4H_2O$) single crystal by modified Sankaranarayanan-Ramasamym method*", Journal of Material Science and Technology, 25, No-6, pp. 1-4.

20. R. Priya, C. Justin Raj, S. Krishnan, **S. Dinakaran**, R. Robert, S. Jerome Das, (2009), "*Optical, mechanical and surface analysis on potassium boromalate monohydrate grown by SR method*", International Journal of Materials Sciences. 4, pp. 63–70.

21. **S. Dinakaran**, S. Jerome Das, (2008), *"Uniaxial growth of nonlinear optical active lithium paranitrophenolate trihydrate single crystal by Sankaranarayanan-Ramasamy (SR) method",* Journal of Crystal Growth, 310, pp. 410 – 413.

22. **S. Dinakaran**, J. Mary Linet, C. Justin Raj, S.M. Navis Priya, S. Jerome Das, (2008), "Investigations *on the nucleation studies of sodium para nitrophenolate dihydrate single crystals*", Materials Research Bulletin, 43, pp. 2010 – 2017.

23. C. Justin Raj, **S. Dinakaran**, S. Krishnan, B. Milton Boaz, R. Robert, S. Jerome Das, (2008), "*Studies on optical, mechanical and transport properties of NLO active L-alanine formate single crystal grown by modified Sankaranarayanan–Ramasamy (SR) method*", Optics Communications, 281, pp. 2285 – 2290.

24. F.A.P. Rathi, **S. Dinakaran**, R. Robert, R. Mahalakshmi, F. Yogam, S. Jerome Das, (2008), "Characterization of L-aspartate crystals grown in gel medium", Crystal Research Technology, 43, pp 729-732.

25. C. Justin Raj, S. Krishnan, **S. Dinakaran**, R. Uthrakumar, S. Jerome Das, (2008), "*Growth and optical absorption studies on potassium dihydrogen phosphate single crystals"*, Crystal Research Technology, 43, pp 245 – 247.

26. C. Justin Raj, S. Krishnan, **S. Dinakaran**, S. Mary Navis Priya, R. Uthrakumar, S. Jerome Das, (2008), "*Growth and characterization of nonlinear optical potassium boromalate monohydrate (KBM) single crystal grown by modified Sankaranarayanan- Ramasamy (SR) Method*", Crystal Growth and Design, 8, pp. 3956 – 3958.

27. J. Mary Linet, S. Mary Navis Priya, **S. Dinakaran**, S. Jerome Das, (2008), "*Dielectric and microhardness studies on L-citrulline and L-ascorbic acid admixture TGS crystals*", Crystal Research Technology, 43, pp. 806 – 810.

28. R. Uthrakumar, C. Vesta, C. Justin Raj, **S. Dinakaran**, Rani Christhu Dhas, S. Jerome Das, (2008) "*Optical and dielectric studies on pure and* Ni^{2+}, Co^{2+} *doped single crystals of bis thiourea cadmium chloride*", Crystal Research Technology, 43, pp. 428 – 432.

29. S. Krishnan, C. Justin Raj, **S. Dinakaran**, R. Uthrakumar, S. Jerome Das, (2008), "*Optical, thermal, dielectric and ferroelectric behaviour of sodium acid phthalate (SAP) single crystals*", Journal of Physics and Chemistry of Solids, 69, pp. 2883 – 2887.

30. S. Mary Navis Priya, J. Mary Linet, G. Bhagavannarayana, C. Justin Raj, S. Krishnan, **S. Dinakaran**, S. Jerome Das, (2008), "*Synthesis, Growth and Characterization of novel non linear optically active Dichloridodiglycinezinc dihydrate*", Crystal Growth and Design, 8, pp.1663 - 1667.

31. S. Krishnan, C. Justin Raj, S. Mary Navis Priya, R. Robert, **S. Dinakaran**, S. Jerome Das, (2008), "Optical and dielectric studies on succinic acid single crystals", Cryst. Res. Technol., 43, pp. 845 - 850.

32. S. Krishnan, C. Justin Raj, S**. Dinakaran**, S. Jerome Das, (2008), "*Investigation of Optical band gap in potassium acid phthalate single crystals*", Cryst. Res. Technol., 43, pp. 670 - 673.

33. A.J. Varjula, C. Vesta, C. Justin Raj, **S. Dinakaran,** A. Ramanand, S. Jerome Das, (2007), "Growth and characterization of a new semi-organic nonlinear optical sodium paranitrophenolate paranitrophenol dihydrate single crystal", Materials Letters, 61, pp. 5053–5055.

34. C. Justin Raj, G. Mangalam, S. Mary Navis Priya, J. Mary Linet, C. Vesta, **S. Dinakaran**, B. Milton Boaz, S. Jerome Das, (2007), *"Growth and characterization of nonlinear optical zinc hydrogen phosphate single crystal grown in silica gel",* Crystal Research Technology, 42, No-4, pp. 344-348.

Invited Talks

- GaN based Blue LED- Theory and Fabrication, State Level Seminar on Recent Advances in Materials, Annai Velankanni College, Tholayavattam, 25.01.2018.
- Growth of highly oriented one-dimensional nano structures by chemical vapour deposition, FDP on Technical Advances in Novel Materials, St.Xavier's Catholic College of Engineering, Chunkankadai, Kanyakumari (DT) 06.10.2020.
- Fundamentals of single crystal growth techniques and its optical homogeneity testing method, FDP on Recent Developments in Materials Science-21, Sree Saraswathi Thyagaraja College, Coimbatore, 17.06.2021.
- Interview Skills, Six day Residential Training Programme on Soft Skills, 23.11.2021.
- Webinar on Intellectual Property Rights, Annai Velankanni College, Tholayavattam 15.12.2021.
- Lecture on Energy Efficient Lighting Systems, Abdul Kalam Science Club activity, St. Joseph's College (Autonomous), Tiruchirappalli, 13.03.2023.
- Lecture on Luminescent Materials in Lighting, Display and Dosimetry Applications, Innovation Club, Joseph's College (Autonomous), Tiruchirappalli, 29.02.2024.

Workshops attended

- National Workshop on Recent Advances and Applications of Material Science organized by The Gandhigram Rural Institute-Deemed University, Gandhigram, 02-03 November, 2017.
- Workshop on Synthesis and Characterization of Rare Earth doped Glasses, Department of Physics, Joseph's College (Autonomous), Tiruchirappalli, 14th September 2022.

Faculty Development Program attended

- Faculty Development Program on "MATLAB" organized by VIT University, 16-18 December, 2013.
- Faculty Development Program on "Writing Error Free Technical Content" organized by VIT University, 11 June, 2014.
- Faculty Development Program on "Electromagnetic Theory" organized by VIT University, 06 October, 2015.
- Faculty Development Program on "Effective teaching of complex concepts using black board" and "setting higher order thinking questions in examinations (HOTS)" organized by VIT University, 19 March, 2016.
- Faculty Development Program on "Crystallography" organized by VIT University, 26 February, 2016.
- Faculty Development Program on "The Vanishing Art of Lecturing" organized by VIT University, 17 March, 2015.
- Faculty Development Program on "Research Challenges in Nuclear Physics" organized by VIT University, 10 December, 2014.
- Faculty Development Program on "Developing funded research project – opportunities and options" organized by VIT University, 27 August, 2014.
- Faculty Development Program on "Nanostructured Metal Oxides and Nitrides for Gas Sensing Applications" organized by VIT University, 01October, 2015.
- Faculty Development Program on "Nanostructured Metal Oxides and Nitrides for Gas Sensing Applications" organized by VIT University, 01October, 2015.
- Five days virtual hands on faculty development programme on e-content organized by Joseph's College (Autonomous), Tiruchirappalli, 15th July to 17th July 2023.
- Faculty development programme on patents and consultancy, organized by Joseph's College (Autonomous), Tiruchirappalli, 20th November 2023.

Programmes Organized

- **Joint Organizing Secretary**, International Conference on Current Research and Advancements in Materials Science and Spectroscopy, organised by Department of Physics, Joseph's College (Autonomous), Tiruchirappalli in collaboration with Indian Spectro physics Association on 10 & 11th February 2023.
- **Co-Coordinator**, ANU AWARENESS PROGRAMME 2023 by Department of Physics, Joseph's College (Autonomous), Tiruchirappalli, 30th November 2023.
- **Coordinator**, One day workshop on X-ray diffraction data: Measurement and analysis, Department of Physics, Joseph's College (Autonomous), Tiruchirappalli 17th December 2021.
- Organized a lecture on "Technological Innovation and Entrepreneurship", Incubation and Innovation Cell, Joseph's College (Autonomous), Tiruchirappalli 16th December, 2022.
- Organized an "Orientation for Budding Innovators", Incubation and Innovation Cell, Joseph's College (Autonomous), Tiruchirappalli, 28th January, 2023.

- Organized an ides pitching competition "Ideathon 2024", Incubation and Innovation Cell, Joseph's College (Autonomous), Tiruchirappalli, 21st February, 2024.
- Organized a session on "How to Plan for Startup and Legal and Ethical Steps", Incubation and Innovation Cell, Joseph's College (Autonomous), Tiruchirappalli, 13th March, 2024

Academic activities

Membership In Professional Associations

- Member, Indian Laser Association, Since June 2024 (Membership No: LM 1643)

Guest Editor

- Materials Today: Proceedings (ICAM 2022), Volume 68, Part 3.

Reviewer

- Materials Today: Proceedings
- Current Pharmaceutical Biotechnology
- Journal of Materials Science: Materials in Electronics
- Scientific Reports
- DAE-BRNS National Laser Symposium (NLS-22) organized by Manipal University, Manipal, January 8-11, 2014
- 26th DAE-BRNS National Laser Symposium (NLS-26) organised by BARC in Mumbai December 20-23, 2017.
- 27th DAE-BRNS National Laser Symposium (NLS-27) organised by RRCAT in Indore, December 3-6, 2018.
- Reviewer and Scientific committee member in WCC Centenary International Conference on Viable Synergies in Mathematical and Natural Sciences organized by Women's Christian College, Chennai 7-9 January 2016.

Research Guidance

- **Research Supervisor,** Bharathidasan University
- **Ph.D Scholars –** 3 (pursuing)

Academic Positions Held

- **President,** Physics Association, Department of Physics, St. Joseph's College, Tiruchirappalli**,** (2023-2024).
- **Coordinator,** Incubation and Innovation cell, St. Joseph's College, Tiruchirappalli (2022-till date).

Administrative Experience

- **Assistant director,** New Hostel, St. Joseph's College, Tiruchirappalli, June 2016 to April 2017.