

Name : K. Girija
Designation : Assistant Professor
Department : Physics
Qualification : M.Sc., M.Phil., Ph.D.,
Experience : Teaching: 7.3 Years Research: 7 Years
Area of Specialization(s) : Nanoscience and Technology
Email (Official ID) : girija.k@drngpasc.ac.in



Academic Qualifications

Degree	Branch	Institution / University Name	Year of Graduation
Ph.D.	Physics – Nanoscience and Technology (Interdisciplinary)	Bharathiar University	2013
M.Phil.	Physics	Ramakrishna Mission Vidyalaya College of Arts and Science / Bharathiar University	2008
M.Sc.	Physics	Kongunadu Arts and Science College / Bharathiar University	2007
B.Sc.	Physics	PSGR Krishnammal College for Women / Bharathiar University	2005

Additional Qualifications

Diploma / Vocational / Certification	Area of Specialization	Institution / University / Agency Name	Year
HDCA	Computer Basics and Programming	CSC Computer Education	2005
Online Certificate	Physics of Semiconductors, Structural Analysis of Nanomaterials, Solid State Physics, Selection of Nanomaterials for Energy Harvesting and storage application, Biomedical Nanotechnology	NPTEL	2017, 2018, 2019, 2020

Research Guidance

Programme	No. of Scholars	
	Completed	Pursuing
Ph. D.	-	2

Research Publications (Indexed)

International

Thirumalairajan Subramaniam, **Kesavan Girija**, Coherently designed sustainable SERS active substrate of Ag/TiO₂ hybrid nanostructures for excellent ultrasensitive detection of chlorpyrifos pesticide on the surface of grapes and tomatoes, **Journal of Food Composition and Analysis**, Vol. 106, pp.104330-39, 2022, ISSN:0889-157, IF:4.556, (Indexed in SCOPUS).

Thirumalairajan Subramaniam, **Girija Kesavan**, and Ganesh Venkatachalam, Development of CuAlO₂-Encapsulated Reduced Graphene Oxide Nanocomposites: An Efficient and Selective Electrocatalyst for Detection of Neurodegenerative Disorders, **ACS Applied Bio Materials**, pp. 2576-6422, 2020, ISSN: 2576-6422, (Indexed in SCOPUS).

S. Thirumalairajan and **K. Girija**, Efficient and tunable shape selective synthesis of Ag/CeO₂ nanostructures modified highly stable SERS substrate for ultrasensitive detection of pesticides on the surface of an apple, **Nanoscale Advances**, pp. 2576-6422, 2020, ISSN: 2516-0230, IF:7.23, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, Valmor R. Mastelaro, K. S. Subramanian, Enhanced ultrasensitive detection of ozone gas using reduced graphene oxide-incorporated LaFeO₃ nanospheres or environmental remediation process, **Journal of Materials Science: Materials in Electronics**, pp. 0957-4522, 2020, ISSN: 0957-4522, IF:2.22, (Indexed in SCOPUS).

K. Girija, S. Thirumalairajan, Valmor R Mastelaro & D. Mangalaraj, Catalyst Free Vapor-Solid Deposition of Morphologically Different of β -Ga₂O₃ Nanostructure Thin Films for Selective CO Gas Sensors at Low Temperature, **Analytical Methods**, Vol.8, pp.3224-3235, March 2016, ISSN:1759-9679, IF: 1.915, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, Valmor R Mastelaro & N. Ponpandian, Investigation on Magnetic and Electric Properties of Morphologically Different Perovskite LaFeO₃ Nanostructures, **Journal of Materials Science: Materials in Electronics**, Vol.26, No.11, pp.8652- 8662, July 2015, ISSN: 0957-4522, IF: 1.57, (Indexed in SCOPUS).

K. Girija, S. Thirumalairajan, Valmor R Mastelaro & D. Mangalaraj, Photocatalytic Degradation of Organic Pollutants by Shape Selective Synthesis of β -Ga₂O₃ Microspheres Constituted by Nanospheres for Environmental Remediation, **Journal of Materials Chemistry A**, Vol.3, pp.2617-2627, December 2015, ISSN:2050-7488, IF: 10.7, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, Valmor R Mastelaro & N. Ponpandian, Photocatalytic Degradation of Organic Dyes Under Visible Light Irradiation by Floral-Like LaFeO₃ Nanostructures Composed of Nanosheets”, **New Journal of Chemistry**, Vol.38, pp.5480-5490, August 2014, ISSN: 1144-0546, IF: 3.15, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, Valmor R Mastelaro & N. Ponpandian, Surface Morphology Dependent Room Temperature LaFeO₃ Nanostructure Thin Films as Selective NO₂ Gas Sensor Prepared by Radio Frequency Magnetron Sputtering, **ACS Applied Materials & Interfaces**, Vol.6 No.16, pp.13917-13927, July 2014, ISSN: 1944-8244, IF: 5.01, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, Valmor R Mastelaro, V. Ganesh & N. Ponpandian, Detection of Neurotransmitter Dopamine by a Glassy Carbon Electrode Modified with Self-Assembled Perovskite LaFeO₃ Microspheres Made up of Nanospheres, **RSC Advances**, Vol. 4, pp.25957-62, May 2014, ISSN: 2046-2069, IF: 3.71, (Indexed in SCOPUS).

K. Girija, S. Thirumalairajan, & D. Mangalaraj, Morphology Controllable Synthesis of Parallely arranged Single-Crystalline β -Ga₂O₃ Nanorods for Photocatalytic and Antimicrobial Activities, **Chemical Engineering Journal**, Vol. 236, pp.181-190, September 2014. *ISSN*: 1385-8947, IF: 4.05, (Indexed in SCOPUS).

K. Girija, S. Thirumalairajan, G.S. Avadhani, D. Mangalaraj, N. Ponpandian & C. Viswanathan, Synthesis, Morphology, Optical and Photocatalytic Performance of Nanostructured β -Ga₂O₃, **Materials Research Bulletin**, Vol. 48 No.6, pp.2296-2303, February 2013, *ISSN*: 0025-5408, IF: 2.1, (Indexed in SCOPUS).

K. Girija, S. Thirumalairajan, Astam K. Patra, D. Mangalaraj, N. Ponpandian & C. Viswanathan, Enhanced Photocatalytic Performance of Novel Self-Assembled Floral β -Ga₂O₃ Nanorods, **Current Applied Physics**, Vol. 13, pp.652-658, November 2013, *ISSN*:1567-1739, IF: 2.0, (Indexed in SCOPUS)

K. Girija, S. Thirumalairajan, Astam K Patra, D. Mangalaraj, N. Ponpandian & C. Viswanathan, Organic Additives-Assisted Synthesis of Mesoporous β -Ga₂O₃ Nanostructures for Photocatalytic Dye Degradation, **Semiconductor Science and Technology** (IOP), Vol. 28, pp.035015, February 2013, IF: 2.20, *ISSN*: 0268-1242, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, Neha Y. Hebalkar, D. Mangalaraj, & N. Ponpandian, Shape Evolution of Perovskite LaFeO₃ Nanostructures: A Systematic Investigation on Growth Mechanism, Properties and Morphology Dependent Photocatalytic Activities, **RSC Advances**, Vol. 3, pp.7549-61, March 2013, IF: 3.71, *ISSN*: 20462069, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, V. Ganesh, D. Mangalaraj, C. Viswanathan & N. Ponpandian, Novel Synthesis of LaFeO₃ Nanostructure Dendrites: A Systematic Investigation of Growth Mechanism, Properties, and Biosensing for Highly Selective Determination of Neurotransmitter Compounds, **Crystal Growth and Design** (ACS), Vol.13, pp. 291-302, November 2013, IF: 4.55, *ISSN*: 1528-7483, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, I. Ganesh, D. Mangalaraj, C. Viswanathan, A. Balamurugan & N. Ponpandian, Controlled Synthesis of Perovskite LaFeO₃ Microsphere Composed of Nanoparticles via Self-Assembly Process and their Associated Photocatalytic Activity, **Chemical Engineering Journal**, Vol. 290, pp. 420-428, August 2012, IF: 4.05, *ISSN*: 1385-8947, (Indexed in SCOPUS).

K. Girija, S. Thirumalairajan, S. M. Mohan & J. Chandrasekaran, Structural, Morphological, and Optical Studies of CdSe Thin Films from Ammonia Bath, **Chalcogenide Letters**, Vol. 6, No. 8, pp. 351-357, August 2009, IF: 0.934, (Indexed in SCOPUS).

K. Girija, S. Thirumalairajan & S. M. Mohan, Deposition and Characterization of Cadmium Indium Selenide Thin Film by Chemical Bath Technique, **Optoelectronics and Advanced Materials - Rapid Communications**, Vol. 3, No. 1, pp. 60-62, January 2009, IF: 0.563, (Indexed in SCOPUS).

S. Thirumalairajan, **K. Girija**, M. Sudha, P. Maadeswaran & J. Chandrasekaran, Structural and Optical Investigation of Manganese Oxide Thin Films by Spray Pyrolysis Technique, **Optoelectronics and Advanced Materials - Rapid Communications**, Vol. 2, No.12, pp. 779-781, December 2008, IF: 0.563, (Indexed in SCOPUS).

National

K. Girija, G. Thilakavathi, C.K. Bibisha, K. Senthil & R. Sarojini, Spectral Luminescence Study of Interaction of Metals with N-Acetyl- L-Cysteine - A Potent Antioxidant that Protects against Harmful Environmental Toxins, **Eco-Chronicle** Vol.2, pp.185-188, December 2007, ISSN: 0973-4155, (Indexed in UGC).

Book Publications

Nanotechnology in Agriculture Energy and Environment, Chapter 2 and 19, S. Thirumalairajan and **K. Girija**, 1st Edition, Daya Publishing House, New Delhi, 2020, ISBN:978-93-89719-33-8.

Associate Editor, Souvenir of First National Conference on Recent Trends in Basic and Applied Sciences, March 2-3, 2020, ISBN:978-81-943062-8-3.

Presentations in Conference

Thin films of β -Ga₂O₃ designed to sense ethanol at room temperature, World Sensor Congress, Centre for materials for Electronics Technology (C-MET), Thrissur & Centre for Excellence in IIoT Sensors, 8-10 March, 2022 (**First Prize – Poster Presentation**).

Structural and Optical analysis of Self-assembled Nanostructure Spindles of Copper Oxide using facile Wet Chemical Method, International Virtual Conference on “Recent Trends in Applied Mathematics, Physical Sciences and humanities”, Sri Ramakrishna Institute of Technology, 21 October 2021.

Photocatalytic degradation of organic pollutants by oval shaped β -Ga₂O₃ nanostructures for environmental waste remediation, SERB Sponsored National Level Conference on Advanced Materials in Waste management at Dr. N.G.P. Institute of Technology, Feb. 8, 2019.

Doped and Undoped ZnO nanostructures for Sodium Ion Batteries, DST-SERB sponsored National Conference on Transition Metal based Sodium Ion Batteries for Ultrafast Energy Storage Systems, Dr. N.G.P Institute of Technology, Coimbatore, 13-Nov-19.

Information and Communication Technology for Knowledge Centered Education, 19th ISTE TN & P Section Annual Convention for faculty members of Engineering Colleges –2016, Theme: “Internationalization of Engineering Education- Empowering the future”, Dr. N.G.P Institute of Technology, Coimbatore, 2-Dec-16 to 3-Dec-16.

International conference on Advances in New Materials at University of Madras, June 20-21, 2014. (**Best Poster Award**).

Research and Education of Science – Current Scenario, International conference on “Quality changes through Research, Experiences, Expectations & Enhancement”, Dr. N.G.P College of Education, Coimbatore, 14-March-14 to 15- March-14.

Structural, Morphological and Optical Investigation of Nanostructured β -Ga₂O₃. Proceedings of the International conference on “Advanced Materials”, Loyola College, Chennai, 5-Jan-12 to 7-Jan-12. (ISBN 978-81-9094-901-9).

Characterization of Chemical Bath Deposited CdSe Thin Film, Proceedings of the International Seminar on “Mathematical & Experimental Physics”, PSGR Krishnammal College for Women, Coimbatore, 18-Dec-08 to 19-Dec-08. (ISBN 978-81-8487-057-2).

Participation in Conference

International:

- 1) International Virtual Conference on “Advances in Nanomaterials and its Recent Applications”, Dr. N.G.P. Institute of Technology, 15-17, July 2020.
- 2) International Conference on “Quality changes through Research-Experiences, Expectations & Enhancement”, Dr. N.G.P Institute of Education, Coimbatore, 14-March-14 to 15- March-14.
- 3) International conference on “Advanced Materials”, Loyola College, Chennai, 5-Jan-12 to 7 Jan-12.

National:

- 1) National conference on “Advancement in Material Science”, Coimbatore Institute of Technology, 26-Sep-14 to 27-Sep.14.
- 2) Second National Conference on “Multifunctional Nanomaterials and Nanocomposites”, Bharathiar University, 24-Mar-11 to 25-Mar-11.
- 3) National Conference on “Multifunctional Nanomaterials and Nanocomposites”, Bharathiar University, 4- Feb-10 to 5-Feb-10.
- 4) National conference on “Emerging areas in Thin film Science & Technology”, PSG College of Technology, Coimbatore, 13-Feb-09 to 14- Feb-09.

Participation in Seminars

- 1) E-Seminar on “AI: State Space Search and Charles Darwin” at Dr. N.G.P. Arts and Science College, Coimbatore, 21- Oct.-2021.
- 2) E-Seminar on “X-ray Diffraction Technique and its Analysis” at Dr. N.G.P. Arts and Science College, Coimbatore, 11- Oct.-2021.
- 3) One day Seminar on “Energy Materials” at Sathyabama Institute of Science and Technology, Chennai, 4 -June -2021.
- 4) One day National Seminar on “Photonics for Medical Diagnostics” at Dr. N.G.P. Institute of Technology, 3 -July -2019.
- 5) National Level Technical Seminar on “X-Ray Photoelectron Spectroscopy for Nanomaterials Characterization”, Karunya Institute of Technology and Sciences, 19-Feb-2019.
- 6) International seminar on “Mathematical & Experimental Physics”, PSGR Krishnammal College for Women, Coimbatore, 18-Dec-08 to 19-De-08.
- 7) National Seminar on “Advanced Materials and Applications”, Karpagam Arts and Science College, Coimbatore, 4 -Mar-08.

- 8) National level Seminar on “Spectroscopy of Nanoparticles”, Kongunadu Arts and Science College, Coimbatore, 4-Jan-07 to 5-Jan-07.
- 9) National level Seminar on “Astrophysics and Space Physics NASAS-2006”, P.S.G.R Krishnammal College for women, Coimbatore, 24- Feb-06.

Participation in Workshop

- 1) DST-SERB Sponsored National Workshop on “Nanomechanical and Tribological Characterization of Materials”, Sathyabama Institute of Science and Technology, Chennai, 4-5 March 2022.
- 2) International Online Workshop on Materials Science and Computational Methods”, Jamal Mohamed College, Tiruchirappalli, 15-16 Feb. 2022.
- 3) “Online School – Cum- Workshop on ion Beams in Sensor Development”, Inter- University Accelerator Centre, New Delhi, 7-8 Sep. 2021.
- 4) Five days International Virtual Workshop on “Introduction to Research based Characterization tools and Techniques – IRCTT 2021”, Rathinam College of Arts and Science, Coimbatore, 23-27 August 2021.
- 5) DST-PURSE (Phase II) supported Workshop on “Awareness of I-Stem Portal for Use of the R&D Resources, at Bharathiar University, 29-30 March 2021.
- 6) “Introduction to Origin Software”, KL University, 29&30 – Sep.-2020.
- 7) “Software tools and Data Interpretation for Nanomaterials Characterization”, Arulmigu Palaniandavar Arts College for Women, 12- Sep-2020.
- 8) “Materials Technology advancement in Current Scenario”, Sathyabama Institute of Science and Technology, 4 -10 July 2020.
- 9) “How to combat Covid 19 with a mask”, New Prince Shri Bhavani Arts and Science College, Chennai. 27 June 2020.
- 10) “Book & Article publishing and Springer link platform Demonstration” Guru Nanak Dev University in collaboration with Springer nature, Amritsar, 29-April-2020.
- 11) “Advances in Nano Technology”, at Coimbatore Institute of Technology, 31-Aug-2018.
- 12) “Advanced Materials”, at PSG College of Technology, Coimbatore, 28-Feb-14.
- 13) “Advanced Instruments for Characterization”, Bharathiar University, 27-Mar-12.
- 14) “Spectroscopy”, Bharathiar University, 7-Mar-12.
- 15) “Patent Awareness Workshop”, Bharathiar University, 3-Mar-10.

- 16) “Solid state physics to material science”, Pondicherry University, 19-Aug-09 to 21- Aug-09.
- 17) “Advanced techniques for materials characterization”, Bharathiar University, 19-Mar-09 to 21-Mar-09.

Participation in Orientation Programme / Short Term Courses

- 1) IP Awareness/Training Program under National Intellectual property Awareness Mission, GoI, 21 Feb.-2022.
- 2) IoT Wireless and Cloud Computing Emerging Technologies, Coursera, Nov-2020.
- 3) Digital Teaching Techniques, ICT Academy, Aug. 2020.
- 4) Non-linear Dynamics- An Introduction, Bharathidasan University, Jul. 2020.
- 5) Applications of Electrochemical Workstation, Sri Ramakrishna Engineering College, Coimbatore, 10-12-Jul-2017.
- 6) “5th DST Advanced School on Nanoscience and Nanotechnology”, IISc Bengaluru, 17-Jan-11 to 23-Jan-11.
- 7) IUAC Acquaintance Programme on “Accelerator Based Research”, Kongunadu Arts and Science College, Coimbatore, 1-Dec-06.

Participation in Faculty Development Programme

- 1) Virtual International Faculty Development Program on “ Scope and Development in Teaching & Research Strategies in Basic Science” by Sri Ramakrishna College of Arts and Science, Coimbatore, 22-26 Nov. 2021.
- 2) Faculty Development Programme on “Advances in Nanomaterials and Single Crystals on Practical Device Applications” at Adikavi Nannaya University, Rajamahendravaram, 3 Feb. 2021. (On-line)
- 3) Online Faculty Development Programme on “Research Methodology and Pedagogy for Tertiary Education”, at Dr. N.G.P. Arts and Science College, 15-21, June- 2021.
- 4) “Impacts of Nanomaterials Applications in the Environment” Mepco Schlenk Engineering College, 17-21, Aug.-2020
- 5) “Recent Trends in Nano materials and its Applications”, at Coimbatore Institute of Technology, 15-27- Feb-2021.
- 6) Three Days Faculty Development Programme on “Advanced Materials for Energy, Environment and Health care applications”, Sethu Institute of Technology, 29-30 June and 1 July 2020.
- 7) National level Online FDP on “Advancements in Materials Science” Jeppiaar institute of Technology, 5 & 6-June-2020.
- 8) Online Faculty Development Program on “Recent Trends in Material Frontiers”, St. Joseph’s College of Engineering, 29-30 May 2020.
- 9) One week FDP Programme on Quality Initiatives in Higher Education”, Dr. N.G.P. Arts and Science College, 13-20 April 2020.

- 10) “Two-day FDP on Virtual Teaching” conducted by CIT- TLC, 20&21-April-2020.
- 11) “Shifting paradigm: Improving mentor competencies to match present –day academic priorities” Dr. N.G.P Institute of Technology, 28-Dec-16.
- 12) “Instructional Design and Delivery System” conducted by National Institute of Technical Teachers Training & Research, at Dr. N.G.P Institute of Technology, Coimbatore, 11-Nov-13 to 15-Nov-13.
- 13) NAAC Revised Accreditation Framework & OBE Assessment Methodology, Dr. N.G.P. Arts and Science College, Coimbatore, 27-May-19 to 2-Jun-19.

Conference / Seminar / Workshop Organized

- 1) Organizing Secretary, E - Workshop on “Phase Identification of Polycrystalline materials using XRD data in Softwares” at Dr. N.G.P Arts and Science College, Coimbatore on Sep. 25, 2021.
- 2) Organizing Secretary, E - Workshop on “Introduction to ORIGIN and Basic Plotting” at Dr. N.G.P Arts and Science College, Coimbatore on December 26, 2020.
- 3) Organizing Secretary, Two-day National Workshop on Nano Characterization and Applications of Biosensor, Dr. N.G.P. Arts and Science College, Coimbatore, 20&21- Feb.-20.
- 4) Organizing Member, Faculty Development Programme on Engineering Materials and its Applications, Dr. N.G.P Institute of Technology, Coimbatore, 11-Jan-18.
- 5) Organizing Secretary, National Conference on Advanced Functional materials and their Applications in Engineering (NCAFMAE-2017), Dr. N.G.P Institute of Technology, 25-Jan-17.

Invited Speaker / Session Chair- Conference / Seminar / Workshop

Chaired a Technical Session - Fourth International Conference on Materials Science and Manufacturing Technology (ICMSMT 2022), 08-April-2022.

Parent Representative (Special Guest) – Children’s Day celebration at Lisieux Matriculation Higher Secondary School, Coimbatore, 15-Nov.-2021.

Chief Guest – National Science Day Celebration at Dr. N.G.P. College of Education, 02- March-2021.

Session Chair - Conference, First National Conference in Recent trends in Basic and Applied Sciences, Dr. N.G.P. Arts and Science College, Coimbatore, 02-March-20.

Member in BoS

Board of Physics, Sri Ramakrishna College of Arts and Science (Autonomous), 2020-21.

Board of Physics, Dr. N. G. P. Arts and Science College (Autonomous), Coimbatore, 2018.

Editorial / Review Board Member

Review Board Member: Physica E Low Dimensional Systems and Nanostructures, Journal of Physics and Chemistry of Solids, 2017-2018.

Membership in Professional Bodies

Name of the Professional Body	Nature of membership	Duration
Materials Research Society of India (MRIS- INDIA)	Life member	-
Fellow of Asian Research Association (FARA)	Life member	-
Electron Microscope Society of India (EMSI- INDIA)	Life member	-
Indian Society for Technical Education (ISTE)	Life member	-
Nano Science and Technology Consortium (NSTC)	1 Year	2014 - 2015

Awards / Honors

Awards / Honors	Agency / Institute	Year of Award
Junior Research Fellow (JRF)	DRDO BU-CLS, Bharathiar University, India.	2010-2013
Senior Research Fellow (SRF)	CSIR, Government of India	2014
Post-Doctoral Fellowship	FAPSEP, University of Sao Paulo, Brazil	2015
IASc-INSNA-NASI Summer Research Fellowship	Science Academies	2018

Recognition National / International

Nature of Recognition	Organization / Institution	Year
Dr. Abdul Kalam Award for Scientific Excellence	Marina Labs	2019
Best Women Faculty Award	Novel Research Academy	2019
Best Women Faculty Award	Nature Science Foundation	2020