Dr. Anuradha M Ashok
Professor and Head
Dept. of Physics
Email: anu@psgias.ac.in
Phone: 0422 4344000 extn:4321
Address:
Functional Materials Laboratory (I-109), I-Block,
PSG Institute of Advanced Studies,
Peelamedu, Coimbatore-641004

BIOSKETCH

Dr. Anuradha Ashok's research group focusses on Functional oxides for clean energy and optoele applications such as Solid oxide Fuel cells, thermoelectrics, photocatalytic hydrogen generation, solar photovoltaics, transparent conductors, memristors etc. She did her Masters' in Materials Science from Mangalore University Karnataka and PhD in Physics from University of Oslo, Norway. She also has the expertise in Transmission Electron Microscopy, crystallography, structural analysis, analysis of structure-property relationships. She established research facilities such as XRD, electron microscopy, thermoelectrics etc at PSG IAS. So far she has carried out Research projects funded by DST (SERB, International cooperation), DRDO (NRB, ARDB, CARS) UGC DAE-CSR on various clean energy applications. She is the Life member of Materials Research Society of India, Electron Microscopy Society of India, and Institute for Smart Structures and Systems. She has conducted several workshops conferences and symposiums on material characterisation and clean energy including Indo US bilateral workshop funded by IUSSTF.

Educational Profile

- **Doctor of Philosophy (Ph.D.) in Physics**
  Year of Passing: 2008
  Thesis title: Structural variations in proton and oxide ion conducting alkaline earth niobate and tantalate complex perovskites
  Thesis Supervisor: Prof. Arne Olsen, Department of Physics, and Prof. Truls Norby, Dept. of Chemistry, University of Oslo, Norway

- **Master of Science and Technology (M.Sc.) in Materials Science**
  Department of Materials Science
  Mangalore University, Dakshina Kannada, Karnataka

- **Bachelor of Science (B.Sc.) in Physics, Chemistry, Mathematics**
  Sri. D. M. College Ujire, Mangalore University, Karnataka

Positions Held

2022-till date	Professor and Head, Dept. of Physics, PSG IAS, Coimbatore
2019-2022	Associate Professor PSG Institute of Advanced Studies, Coimbatore
2017-2019	Associate Professor, PSG College of Technology, Coimbatore
2010-2016	Assistant Professor, PSG Institute of Advanced Studies, Coimbatore
2009-2010	Research Scientist, PSG Institute of Advanced Studies, Coimbatore

Research Areas

- Oxide composites for Thermoelectrics

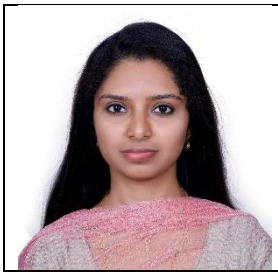
- EMI shielding composites
- Oxides and perovskite halides for optoelectronics (TCO, Memristors etc)
- Solar photovoltaics
- Oxide photocatalysts for dye degradation and hydrogen generation
- Oxide ceramics for SOFC applications

Awards & Achievements

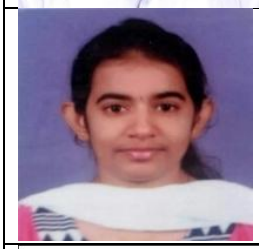
1. FUNMAT research fellowship by University of Oslo-2002
2. SCANDEM travel grant by Scandinavian Society of Electron Microscopy-2001
3. 2nd Prize on Electron Micrograph contest by Electron Microscopy Society of India-2010
4. Visiting fellowship 2018 by Jawaharlal Nehru Centre for Advanced Scientific Research-2018

Research Group

Research Scholars (Ongoing)



Mrs. Nithya Davis (Full time)
Registered under Bharathiar University
Designation: PSG IAS fellow
Research title : Perovskite oxides for clean energy generation through thermoelectrics
E-mail : nid@psgias.ac.in

	**Ms. Priyadharshni K.** (Full time) Registered under Bharathiar University Designation: PSG IAS fellow Research title : Inorganic Lead Free Halide Perovskite for Optoelectronic Applications E-mail : kph@psgias.ac.in
	**Mr. K. Sathish Kumar** (Part time) Registered under Bharathiar University Research title : Functional spinel oxide materials for thermoelectric applications E-mail : sathishkumar7@ymail.com
	**Ms. Navya John** (Full time) Registered under Bharathiar University Designation : Junior Research Fellow (CRS project) Research title : ZnA_2O_4 (A= transition metals) type spinel materials for thermoelectric applications E-mail : nvj@psgias.ac.in
	**Mr. Shiva Subramani M** (Full time) Registered under Bharathiar University Designation : Junior Research Fellow (DRDO-ASL project) Research title : Carbon fiber/ Alumina fiber reinforced Boron Nitride Composites for High Temperature Applications (ASL project) Fabrication of Hybrid Memristor by Novel Bismuth Vanadate (BiVO4) by cost effective method (PhD topic) E-mail: mss@psgias.ac.in
	**Ms. Bharathi S** Registered under Bharathiar University Research title: Oxide ceramic composites for thermoelectric applications Email: sbt.rs@psgias.ac.in

Alumni

Ph.D.	
	**Dr. Bradha Madhavan** Anna University – 2015 passed, N-PDF-2016 (CSIR-NIIST, Trivandrum) PhD thesis title : "Doped Oxygen deficient $LaTiO_{3-\delta}$ perovskites for energy and catalytic applications" Present Designation : Associate Professor, Department of Physics, Rathinam Technical Campus, Coimbatore

	**Dr. T. Vijayaragavan** Bharathiar University-completed in 2019 PhD thesis title: Complex ferrite materials for hydrogen generation through photocatalytic water splitting and textile dye degradation applications Present designation: Senior Project Scientist, IIT Madras.
	**Dr. K. Kavitha K** (Full time) Anna University- Completed in 2021 Designation : Senior Research Fellow – Rajiv Gandhi National Fellowship PhD thesis title : Development of potassium doped, oxygen deficient complex perovskite oxides for solid oxide fuel cell applications Present designation: Proprietor of Agathiya Nature Care- KaVino Oils
	**Dr. Althaf R** Bharathiar University, Completed in 2023 PhD thesis title : Structural, morphological characteristics and tthermoelectric property analyses of doped *n* and *p* type ZnO Current designation: Post doctoral fellow at Trinity College Dublin, Ireland
	**Dr. Simya O K** Anna University. Completed in 2021 Designation : Women Scientist (DST (WOS-A) PhD thesis title : Performance of CZTX (X= S, Se) thin film solar cells developed by simplified process and efficiency enhancement through back contact modification Current designation: Research Associate at Loughborough University UK.
	**Dr. Sreepriya M** Anna University, Completed in 2023 PhD thesis title : Efficient alkaline earth stannate transparent conducting oxides deposited through benign chemical deposition methods Current designation: Assistant Professor, Dept. of Physics, NSS College Nemmara, Palakkad
M. Phil	
	**Dr. J. Vigneswaran** Bharathiar University – 2015 passed Thesis title : " Synthesis and electrochemical study of $LaCoO_3$ /activated carbon as an electrode material for supercapacitor" Present Designation : Postdoctoral Researcher at IIT Delhi

	**Dr. Haripriya.M** Bharathiar University – 2017 passed Thesis title : "Synthesis and characterization of alkaline earth metal stannates for energy and catalytic applications" Present Designation : Assistant Professor, Dept. of Chemistry, NSS College Nemmara, Palakkad
	**Dr. Sreepriya.M** Bharathiar University – 2017 passed Thesis title : "Synthesis, characterization and conductivity studies of $LaCoO_3$ and $La_{0.8}A_{0.2}CoO_3$ (A – Li, Ca, Sr, Ba)" Present Designation : Assistant Professor, Dept. of Physics, NSS College Nemmara, Palakkad

Funded Projects

S. No	Title of the project	Role (PI / Co-PI)	Funding agency and year of sanction	Budget Lakhs	Duration And status
1	Functionalised graphene-oxide nanocomposites with enhanced thermoelectric properties for clean energy applications	PI Dr. B. Geetha Priyadarshini (Co-PI)	DST India-Belarus Joint project (2023)	19.82 L	2 years (Ongoing)
2	Carbon fiber/Alumina fiber reinforced Boron Nitride Composites for High Temperature Applications	PI	DRDO-CARS (2022)	24.49	3 years Completed
3	ZnA_2O_4 spinel composites for intermediate temperature thermoelectric applications	PI	UGC CAE CSR (2022)	7.3	3 years Completed
4	Synthesis and Study of the behavior of monolayer and multilayer AMO3 (where A = Ba, Ca, Sr and M = Ge, Sn) perovskite thin films for applications as Transparent Conducting Oxides	PI	ARDB (2018)	28.83	3 years completed
5	Development of novel thermoelectric module using doped and nanostructured ZnO based materials for energy generation	PI	DST SERB (2018)	50.86	3 years completed

6	Synthesis, Characterization, Proton and oxide ion conduction in doped nanocrystalline LaTiO3-δ perovskites	PI	UGC DAE-CSR (Nov 2012-March 2015)	7.39	3 years (completed)
7	Synthesis and characterization of mixed proton-oxide ion conducting highly substituted and disordered complex perovskites for energy applications	PI	NRB (March 2013-October 2016)	24.9	3 years (completed)
8	Nanostructured thin film solar cells using nanoimprint lithography	Mentor PI: Ms O. K. Simya, PSG IAS	DST WOS-A (May 2017)	26	3 years (completed)
9	Multifunctional complex oxide nanostructures of titanium and iron for diverse applications	Co-PI PI: Dr. R. Sivasubramanian	UGC-DAE CSR (2017)	7.39	3 years completed
10	Development of Novel, Single-Step Production of Metal Oxide Based Aligned, Electrospun Core-Shell Nanofibers and Quantitative Assessment of Their Gas Sensor Performance	Co-PI (PI: Dr. P. Biji, PSG IAS)	DST-SERB (2015-2018)	56.39	3 years (completed)
11	Fabrication & Characterization of Nanoimprinted High Efficiency Crystalline Silicon Solar Cells	Co-PI (PI: Dr. P. Biji, PSG IAS)	DST-SERI (2014-2017)	102	3 years (completed)
12	Fabrication and Characterization of Nano-structured Thin Film Thermoelectric Devices for Waste Heat Recovery	Co-PI (PI: Dr. B. Geetha Priyadarshini, PSG IAS)	DRDO-CARS 2016	21	3 years (completed)
13	A study on grain refinement of Mg-Al alloys using Al-Si/Al4C3 master alloy and Al4C3 powders (as Co-Investigator)	Co-I (PI: Dr. K. R. Ravi, PSG IAS)	AR&DB (2011)	23	3 years (completed)

Laboratories In-charge

1) Functional materials laboratory
2) High Resolution Transmission Electron Microscopy and TEM specimen preparation facility

3) Thermogravimetric/Differential scanning calorimetry
4) X-Ray Diffraction
5) Scanning Electron Microscopy
6) High temperature Hall measurement system
7) Seebeck measurement system

Invited Talks

1. "Transmission Electron Microscopy" and also demonstration on HRTEM analysis and specimen preparation in a two day workshop on Theory and Practice of Advanced Techniques for the Characterization of Nanomaterials conducted jointly by Dept of Chemistry of PSG College of Technology, Coimbatore and Malvern Aimil on 20th and 21st January 2011.
2. "Essentials of Transmission Electron Microscopy" at International conference and workshop on new materials and devices used for photovoltaic applications held at Madhurai Kamaraj University, Madurai on 11th February 2011
3. "Transmission Electron Microscopy-An Essential tool for Material Characterization" at a workshop on Theory and Practice of Advanced Techniques for the Characterization of Nanomaterials at PSG College of Technology on 21st January 2012
4. "Transmission Electron Microscopy" at PSG College of Arts and Science on 2nd February 2012
5. " Advanced Material Characterisation" in Pollachi Institute of Technology, Pollachi, Tamilnadu, India on 3rd Nov 2012
6. " Transmission Electron Microscopy – An essential tool for material characterization" at TPC-Nano conducted by PSG College of Technology held on 24th and 25th Jan 2013
7. "Transmission Electron Microscopy-An essential tool for material characterization" at Faculty Development Program held at Dept. of Physics, PSG College of Technology on 9th Aug 2013.
8. "Scanning Electron Microscopy-Basics and instrumentation" at National workshop on "Field Emission Scanning Electron Microscope and its Applications" conducted by Centre of Excellence for Medical Textiles at South India Textile Research Association (SITRA), Coimbatore on 7th Aug 2014
9. "Superstructure Formation Through Vacancy Ordering In Complex Perovskites: A TEM Perspective" at World Congress on Microscopy: Instrumentation, Techniques and

Applications in Life Sciences and Materials Sciences(WCM 2015) 9-11 October 2015 at Mahatma Gandhi University, Kottayam, Kerala, India

10. Lecture on "Electron Microscopy: An essential tool for material characterisation" at Short Term Course On "**Nanomaterials and Their Applications**" Sponsored by AICTE under Quality Improvement Programme, during 2nd May – 8th May, 2016 at Coimbatore Institute of Technology, Coimbatore
11. "Nanomaterial characterisation" at Faculty development programme (FDP) on "Recent advances in Nanomaterials for energy, environment and health care applications" during 20 -23rd of July 2016 supported by TEQIP conducted by Dept. of ECE of PSG CT
12. "High Resolution transmission Electron Microscopy" Hands on training in synthesis and characterization of nanomaterials" conducted by Dept. of ECE PSGCT on 27th and 28th July 2016
13. "Electron microscopy and thermal analysis for nanomaterial characterisation" at National level Nano workshop to PSG college of Pharmacy organized on August 11 and 12, 2016
14. "Perovskite solar cells: present scenario and future challenges" in the two day seminar on "Solar Installations, Economics, Business opportunities and New Trends in Solar Energy Systems" held on 18th and 19th Aug 2016 at PSG IAS, Coimbatore
15. Lecture on "Electron Microscopy: An essential tool for nanomaterial characterisation" in National - workshop on Nanaomaterials and Nanotechnology (30th January 2017 - 4th February 2017) at Amritha Vishwavidyapeetham, Coimbatore on 1st Feb 2017
16. Lecture on "Electron Microscopy: An essential tool for nanomaterial characterisation" at the Summer internship program conducted by Sri Ramakrishna engineering College Coimbatore on 14th June 2017
17. Lecture on "Electron Microscopy: An essential tool for nanomaterial characterisation" at Summer research internship program (SRIP-2017) conducted by GRD Centre for Materials Research PSGCT on 12th June 2017
18. " Fundamental and practical aspects of x-ray diffraction" at Summer research internship program (SRIP-2017) conducted by GRD Centre for Materials Research PSGCT on 20th June 2017

19. " Complex oxides for clean energy applications" at AICTE sponsored Quality improvement programme on smart advanced materials; conducted by Dept. of Chemistry, Coimbatore Institute of Technology, Coimbatore from 8th to 14th Nov 2017
20. "Research activities on clean energy at PSG Institute of Advanced studies" at Indo-US bolateral workshop on nanotechnology for clean energy generation and storage on 12 Jan 2018
21. "Electron microscopy for nanoscale material characterization" at AICTE – QIP Sponsored Short Term Course on "Innovative Materials for Construction and their Characterization" conducted by Coimbatore Institute of Technology, Coimbatore on 24 May 2018
22. "Scanning Electron Microscopy- Basics and Instrumentation" at One day training program on " Field Emission Scanning Electron Microscopy" conducted by CNR Rao Lab, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore on 25 May 2018
23. " TEM data analysis", Advanced Imaging techniques for ceramics and nanomaterials and TEM specimen preparation" at Workshop on principles and applications of Transmission Electron Microscopy conducted by SRM Research Institure at SRM University, Chennai on 28. 11. 2018
24. " Waste heat recovery and clean energy generation through Thermoelectrics" at DRDO Sponsored National level Seminar on "Advances in Materials Research for Armaments Applications" (AMRA) conducted by our Department of Physics, Dr. Mahalingam College of Engineering and Technology, Pollachi on 15 Feb 2019
25. " X-Ray diffraction: Basics, principles, instrumentation and data analysis" at Short Term Course On "**Advanced Characterization Techniques**" Sponsored by TEQIP-III, conducted by Dept. of Physics, Coimbatore Institute of Technology, Coimbatore on 22 Feb 2019
26. " Advanced materials and their characterization" at Assam Engineering College on 18th and 19th March 2019 as TEQUIP III Twinning activity between PSG College of Technology and Assam engineering College, Guwahati.
27. " Waste heat recovery and clean energy generation through thermoelectrics" at Dept. of Physics, Manipal Institute of technology, MAHE, Manipal on 30 April 2019
28. "Material characterization through Transmission Electron Microscopy and thermal analysis" Key note lecture at **TEQIP-III Sponsored** Faculty Development Programme

on **"Sustainable Construction Materials and its Characterization"** at PSG College of Technology on 10 June, 2019

29. "Complex oxides for clean energy applications" (Contributory presentation) at ISMANAM-2019 conducted by IIT Madras on 8-12 July 2019
30. "Oxide materials for clean energy applications" Invited lecture at Belarusian-Indian seminar on Nanomaterials and Advanced Materials conducted at O. V. Roman PM Institute Minsk, Belarus from 25 to 27 Sept 2019
31. "Material characterisation at micro-nano scale: Techniques and basic principles" at TEQIP III Sponsored Faculty Development Program (FDP) on **Recent Trends in Industrial Metrology and Calibration of Measuring Instruments** from 03rd November to 09th November 2019 at PSG College of Technology, Coimbatore.
32. "Waste heat recovery through thermoelectrics" at DRDO sponsored national seminar on **Smart Materials for Strategic Applications** on 12 Oct 2019 at PSG College of Technology, Coimbatore.
33. "The world of Nanotechnology" at White eagle Public School, Coimbatore on 04 Feb 2020
34. "Basics and various techniques of material characterization using Transmission Electron Microscopy" at **National level virtual workshop on advanced material characterization tools** conducted by SRM Research Institute, Chennai on 20th May 2020
35. "Nanomaterials for clean energy applications" in the online FDP on "Evolution of functional materials and their effective characterization for diverse engineering applications" conducted by Kumaraguru College of Technology, Coimbatore during 22-29 June 2020.
36. "X-Ray Diffraction: Basics and Techniques for Materials characterization" webinar at *Virtual refresher course on Material characterization* conducted jointly by Indian Ceramic Society of India (Karnataka chapter) and Visvesvarya Technological University, Belagavi, Karnataka on 30 Oct 2020
37. "Microscopy-A deepened understanding" at TEQUIP III sponsored international FDP programme on "Conceptualizing strategic materials for inventive engineering applications (CSMI - 2021)" conducted by Dept. of Physics, PSGCT on 23March 2021
38. Invited lecture on X-Ray diffraction, Basics, Techniques and Applications" at Professional Certificate Course on "Analytical and Phytochemical techniques" organized by the Bharat Ratna Prof.CNR Rao Research Centre,

Avinashilingam Institute for Home Science and Higher education for Women, Coimbatore on 22 Sept 2022

39. "Waste heat recovery and clean energy generation through thermoelectrics" at Two Day National webinar on "Emerging Trends in Energy Applications" conducted by Department of Science and Humanities Federal Institute of Science and Technology (FISAT), Kerala on 28th April 2022
40. Lecture on "Functional oxide materials for clean energy applications) at the Dept. of Materials Science, Mangalore University on 17 Jan 2023
41. Lecture "Electron Microscopy-An essential tool for material characterisation" at One day workshop on Transmission Electron Microscopy organized by Bharathiar University on 31 March 2023
42. Lecture on "Functional oxides for clean energy applications" at SSPA "Scientific-Practical Materials Research Centre of National Academy of Sciences of Belarus" on 1 Nov 2023
43. **Keynote lecture** on "Functional oxide materials for clean energy applications" at 18th Asian conference on Solid State Ionics (ACSSI-2024) 19-22 Feb 2024 at Meenakshi College for Women- Chennai.
44. **Invited lecture** on "Defect engineered functional oxide materials for mid-high temperature thermoelectric applications" at second International Conference on Energy Materials and Devices (ICEMD-2024) held at Banaras Hindu University, Varanasi from 19th to 22 March 2024.
45. **Resource person** to give lecture on "Electron microscopy: A versatile technique for materials characterization" at 5 day Faculty Development Program (FDP) on 'Physics in Engineering and Technology' from 12th-16th February 2024 at PSGiTech Coimbatore
46. **Resource person** to give lecture on Electron Microscopy: Principles, instrumentation, techniques and data analysis" at National conference in advanced characterization techniques (NW-ACT2024) conducted by School of Physical Sciences, Amritha Vishwa Vdyapeetham, Coimbatore on 7th and 8th March 2024
47. **Resource person** at the DRDO sponsored National level workshop on sophisticated instrumental analysis for environmental research on 4th April 2024 at KPR Institute of Engineering and technology, Coimbatore
48. **Guest lecture** on "Applications of Nanomaterials" at the inaugural function of Science Association of PSG Polytechnic College on 6 Aug 2024
49. **Resource person** in One day workshop on Nanomaterials and its characterisation to give a lecture on "Nanomaterial characterisation through Electron Microscopy" on 07 March 2025
50. **Invited lecture** on "Green hydrogen synthesis through Photocatalysis and Photo-electrochemical processes". At One day NATIONAL WORKSHOP on "Fueling the Future: Green Hydrogen in Sustainable Transportation" on 04.03.2025 conducted by Dept of Automobole Engineering PSGCT
51. **Invited lecture** at International conference on nanomaterials and nanotechnology (ICONN-25) on "Oxide ceramic composites for waste heat recovery through Thermoelectrics" on 24 March 2025
52. **Invited lecture** on "Enhanced thermoelectric properties in oxide ceramics by doping and compositing ". At the International scientific Conference on Actual problems in Solid Stata Physics (APSSP-2025) on 21 May 2025

53. **Resource person** at One week FDP on New Horizons in Chemistry conducted by PRGR Krishnammal College for Women on 18 July 2025
54. **Resource person** at RUSA sponsored Skill development programme on Electron Microscopy conducted by Madurai Kamaraj University, Madurai on 20 Aug 2025

Journal Publications

1. Althaf Raja Mohamed, Hyoung-Won Son, Takao Mori, and **Anuradha M. Ashok** "High Thermoelectric Performance in Al- and Sn-Codoped ZnO Nanosheets via Synergistic Band Structure Engineering with Low Thermal Conductivity" *ACS Applied Energy Materials* DOI: https://doi.org/10.1021/acsaem.5c00253
2. Sreepriya Muraleedharan , **Anuradha M Ashok**, "Enhanced optoelectronic performance in dip-coated perovskite stannate transparent conducting thin films through nitrogen doping" *Thin Solid Films* 809 (2025) 140592 https://doi.org/10.1016/j.tsf.2024.140592
3. Navya John, Nithya Davis, T. Gokul Raja, J.C. Roshan, Shamima Hussain, Sebin Devasia, Bhuvanesh Srinivasan, **Anuradha M. Ashok**, Enhancing thermoelectric properties of spinel ZnFe2O4 by Ni substitution through electron hopping mechanism, *Ceramics International*, 50 (2024) 45251–45262, https://doi.org/10.1016/j.ceramint.2024.08.365
4. Manasa R. Shankar, A. N. Prabhu, **Anuradha M. Ashok**, Nithya Davis, Bhuvanesh Srinivasan, and Vikash Mishra; Role of Bi/Te co-dopants on the thermoelectric properties of SnSe polycrystals: an experimental and theoretical investigation *J Mater Sci* (2024) 59:13055–13077. https://doi.org/10.1007/s10853-024-09984-9
5. Deepika Shanubhogue U; Ashok Rao; Bodhoday Mukherjee; Gunadhor Singh Okram Gunadhor Singh Okram; Nithya Davis Nithya Davis; **Anuradha M. Ashok**; Poornesh P, (2023) "Incorporation of Copper in $LaCoO_3$: Modulating Thermoelectric Power Factor for Low and Mid-Temperature Thermoelectric Applications" *J Mater Sci: Mater Electron* **34**, 1893 (2023). https://doi.org/10.1007/s10854-023-11339-0
6. Sreepriya Muraleedharan, **Anuradha Ashok** "Nitrogen doping for effective enhancement of optoelectronic performance of ASnO3 (A-Ca, Sr, Ba) transparent conducting oxides deposited by doctor blade method" Optik - International Journal for Light and Electron Optics 287 (2023) 171096 https://doi.org/10.1016/j.ijleo.2023.171096
7. Mahaboobbatcha Aleem, Ramakrishnan Vishnuraj, Balachander Krishnan, **Anuradha Ashok**, Biji Pullithadathil, "Narrow Line Width Ni–Cu–Sn Front Contact Metallization Patterns for Low-Cost High-Efficiency Crystalline Silicon Solar Cells using Nano-Imprint

Lithography" *Energy Technology* 11 (8), 2023, 2300090 https://doi.org/10.1002/ente.202300090

8. U Deepika Shanubhogue, Anand Pal, Ashok Rao, Saikat Chattopadhyay, Anuradha M Ashok, Nithya Davis "Tuning optical and thermoelectric properties of $LaCoO_3$: Partial substitution of La by isovalent Gd" Journal of Alloys and Compounds Volume 941, 2023, 168987 https://doi.org/10.1016/j.jallcom.2023.168987
9. Sahiba Bano, Ashish Kumar, Bal Govind, Aman Bhardwaj, Aakansha Kapoor, **Anuradha Ashok**, Thiruvenkatam Vijayaraghavan, Pallavi Kushwaha, Surinder Pal Singh "Enhanced Thermoelectric Performance of $Ni_xBi_{0.5}Sb_{1.5}Te_3$ *via In Situ* Formation of $NiTe_2$ Channels" *ACS Applied Energy Materials* 5 (11), 14127-14135. https://doi.org/10.1021/acsaem.2c02675
10. Nithya Davis, Althaf. R, Sreepriya Muraleedharan , Jayanthinath Mayandi , Terje Finstad, Ihar Razanau, Uladzimir Novikau , **Anuradha M. Ashok** "Multilayer graphene assisted enhanced thermoelectric performance of Lanthanum cobaltite composites" Ceramics International 48, 17 (2022)) 24454-24461 https://doi.org/10.1016/j.ceramint.2022.05.054
11. O.K Simya, T. Vijayaraghavan, B. Subramanian, **Anuradha M. Ashok** "Effect of RF sputter power on in-situ deposition of CZTX (X=S, Se) active layer without selenization/sulfurization, for solar cell applications" Journal of Alloys and compounds 898 (2022) 162838 (https://doi.org/10.1016/j.jallcom.2021.162838)
12. Pradeepta Babu, Soumya Ranjan Dash, Arjun Behera, T. Vijayaraghavan, **Anuradha Ashok** and Kulamani Parida " Prominence of Cu in a plasmonic Cu–Ag alloy decorated SiO_2@S-doped C_3N_4 core–shell nanostructured photocatalyst towards enhanced visible light activity" *Nanoscale Adv.*, 4 (2022) 150-162 (DOI: https://doi.org/10.1039/D1NA00633A)
13. Sreepriya Muraleedharan**, Anuradha M. Ashok** "Efficacy of hydrothermally grown $ASnO_3$ (A-Ca, Sr, Ba) Transparent Conducting Oxide thin films" *Physica B* 625 (2022) 413463 ((https://doi.org/10.1016/j.physb.2021.413463)
14. T. Vijayaraghavan, R. Althaf, Pradeepta Babu, K.M. Parida, S. Vadivel, **Anuradha M. Ashok**, "Visible light active LaFeO3 nano perovskite-RGO-NiO composite for efficient H2 evolution by photocatalytic water splitting and textile dye degradation" *Journal of Environmental Chemical Engineering*, 9 (2021) 104675. https://doi.org/10.1016/j.jece.2020.104675
15. Sreepriya Muraleedharan, Nithya Davis, R. Althaf, Anupama Singh, **Anuradha M. Ashok**, "Exploring the thermoelectric behavior of intrinsic and defect induced LaCoO3 with selected alkaline earth metals", *Journal of Alloys and Compounds*, 857 (2020) 157507, https://doi.org/10.1016/j.jallcom.2020.157507
16. M. Haripriya, Anuradha M. Ashok, Shamima Hussain, R. Sivasubramanian "Nanostructured $MnCo_2O_4$ as a high-performance electrode for supercapacitor application" *Ionics* volume 27, pages325–337 (2021)

17. Althaf R. **Anuradha M Ashok** "Realization of high thermoelectric power factor in Ta-doped ZnO by grain boundary engineering" *J. Appl. Phys.* 128, 165110 (2020); https://doi.org/10.1063/5.0022287.
18. O.K. Simya, K. Balachander, D. Dhanalakshmi, **Anuradha M. Ashok** "Performance of different anti-reflection coating and TCO layers for kesterite based thin film photovoltaic devices using Essential Macleod simulation program" *Superlattices and Microstructures* 145 (2020) 106579
19. Sahiba Bano· Ashish Kumar· Bal Govind· Abdul Hanan Khan· **Anuradha Ashok**· D. K. Misra "Room temperature Bi_2Te_3-based thermoelectric materials with high performance" *Journal of Materials Science: Materials in Electronics* 31 (2020) 8607–8617
20. M Bradha, K Kavitha, T Vijayaraghavan, S Yuvaraj, **AM Ashok** "Synthesis and Electrical Properties of $La_{0.8}Ca_{0.2}Ti_{0.8}Sc_{0.2}O_{3-\delta}$ Complex Perovskite for energy applications" Nanomaterials and Energy, (2020) 1-7
21. Kavitha Karuppiah, Althaf Raja, Prasanta Kumar Ojha, Lakshmi Deepika and **Anuradha M Ashok** "Structure and electrical conductivity properties of K doped Sr1−xKx(Sr0.50Nb0.50)O2.75−δ complex perovskites" *Mater. Res. Express* 7 (2020) 025502
22. T. Vijayaraghavan, M. Bradha, Pradeepta Babu, K.M. Parida, G. Ramadoss, S. Vadivel, R. Selvakumar, **Anuradha Ashok** " Influence of secondary oxide phases in enhancing the photocatalytic properties of alkaline earth elements doped LaFeO3 nanocomposites" *Journal of Physics and Chemistry of Solids* 140 (2020) 109377
23. O K Simya, B Geetha Priyadarshini ,K Balachander and **Anuradha M Ashok** "Formation of a phase pure kesterite CZTSe thin films using multisource hybrid physical vapour deposition" *Mater. Res. Express* 7 (2020) 016419
24. Sreepriya Muraleedharan, Vijayaraghavan Thiruvenkatam, Simya Olavil Karayi, Kavitha Karuppiah, Vigneshwaran Jawahar and **Anuradha M. Ashok** "Investigation on temperature dependent electrical properties of $La_{1-x}A_xCoO_3$ (A-La, Li, Mg, Ca, Sr, Ba)" *Cryst Eng Comm*, 2020, **22**, 85 – 94
25. Kavitha.K, Kiruthika.P, Vijayaraghavan.T, C.Lakshmi Deepika, **Anuradha M Ashok** " Investigation on structural and photocatalytic properties of complex perovskites $Sr_4Sr_2B'_2O_{11}$ (B'=Ta, Nb) *Materials Research Express* IOP Publishing 6(9), 095046, 2019
26. Kavitha K, R. Althaf, P. K. Ojha, G. Govindaraj, **Anuradha M Ashok "**Enhanced electrical properties of $Ba_{1-x}K_x(Ca_{0.5}Nb_{0.5})O_{2.75-\delta}$ (x=0.25) complex perovskite oxide through modified sintering techniques" *Materials Science and engineering B* 246 (2019) 53–61
27. Kavitha Karuppaiah and **Anuradha M Ashok** "Review of proton- and oxide-ion-conducting perovskite materials for SOFC applications" *Nanomaterials and energy* 8(1) (2019) 51–58 https://doi.org/10.1680/jnaen.18.00004

28. M. Haripriya , R. Sivasubramanian, **Anuradha M. Ashok**, Shamima Hussain, G. Amarendra "Hydrothermal synthesis of NiCo2O4– NiO nanorods for high performance supercapacitors" *Journal of Materials Science: Materials in Electronics* https://doi.org/10.1007/s10854-019-01063-z

29. T. Vijayaraghavan, N. Lakshmana Reddy, M.V. Shankar, S. Vadivel, **Anuradha Ashok**, "A co-catalyst free, eco-friendly, novel visible light absorbing iron based complex oxide nanocomposites for enhanced photocatalytic hydrogen evolution" *International Journal of Hydrogen Energy* 43 (2018) 14417 - 4426 https://doi.org/10.1016/j.ijhydene.2018.06.036

30. Venkat V C, Kavitha K, S.Subha Rani and **Anuradha M Ashok** "Development and analysis of nanostructured electrode materials for solid oxide fuel cell applications" *Materials Today Proceedings* 5 (2018) 16319–16326

31. K. Kavitha, T. Vijayaraghavan, N. Gouthami, V. Udhayabanu, **Anuradha M. Ashok, "**Solid-state synthesis and electrical conductivity properties of $Ba_3SrTa_2O_9$ complex perovskite" *Materials Characterisation* 133 (2017) 17–24

32. Thiruvenkadam Vijayaraghavan, Ramanathan Sivasubramanian, Shamima Hussain, and **Anuradha Ashok**, "A Facile Synthesis of $LaFeO_3$-Based Perovskites and their Application towards Sensing of Neurotransmitters" *Chemistry Select* 2 (5570-5577) 2017

33. Bradha M, Kavitha K, Vijayaraghavan T, Vijila G, Suresh P, Udhayabanu V, **Anuradha M Ashok**, "Solid state synthesis and analysis of $Sr_4(Sr_2Ta_2)O_{11}$ complex perovskite with reduced heat treatment steps" *Materials Characterisation* 128 (142-147) 2017

34. Anuradha Ashok, K. Kavitha, T. Vijayaraghavan, Chandrasekhar Kumbhar, P.K. Ojha, **"**Structural and conductivity properties of K doped Ba4Ca2Nb2O11 (BCN) complex perovskite for energy applications" *Journal of Alloys and compounds* 686 (930-937) 2016 http://www.sciencedirect.com/science/article/pii/S0925838816319211

35. T. Vijayaraghavana, S.P. Suriyaraj, R. Selvakumar, R. Venkateswaran, **Anuradha Ashok**; Rapid and efficient visible light photocatalytic dye degradation using AFe_2O_4 (A = Ba, Ca and Sr) complex oxides *Materials Science and Engineering B* 210 (2016) 43–50

36. A Kumaresh, R Arun Kumar, N Ravikumar, U Madhusoodanan, B S Panigrahi, K Marimuthu, and **M Anuradha;** Structural and photoluminescence studies on europium-doped lithium tetraborate (Eu:$Li_2B_4O_7$) single crystal grown by microtube Czochralski (μT-Cz) technique *Chin. Phys. B* Vol. 25, No. 5 (2016) 058105

37. Bradha M., **Anuradha Ashok**; Characterization and dielectric property analysis of A-site doped $LaTiO_{3-\delta}$ perovskites synthesised by ball milling method; *Advanced Materials letters* **6**(5) (395-401) 2015

38. Dinesh Veeran Ponnuvelu, Biji Pullithadathil, Arun K. Prasad, Sandip Dhara, **Anuradha Ashok**, Kamruddin Mohamed, Ashok Kumar Tyagi, Baldev Raj; Rapid synthesis and characterization of

hybrid ZnO@Au core–shell nanorods for high performance, low temperature NO2 gas sensor applications *Applied Surface Science* 355 (726–735) 2015

39. M. Bradha, **Anuradha Ashok**; Dielectric properties of A and B –site doped $LaTiO_{3-\delta}$ perovskites synthesised by sol-gel method; *Journal of sol gel science and technology* 73 (1–8) 2015

40. **Anuradha Ashok,** Reidar Haugsrud, Truls Norby, Arne Olsen; Structural study of the complex perovskite $Ba_4(Ba_2Nb_2)O_{11}$ *Materials Characterization*, 102 (71–78) 2015

41. Bradha Madhavan, **Anuradha Ashok**; Review on nanoperovskites: Materials, synthesis and applications for proton and oxide ion conductivity; *Ionics*, 21 (601–610) 2015 (DOI 10.1007/s11581-014-1340-8)

42. **B**radha, M, Hussain, S, Sujay Chakravarty, G Amarendra , **Anuradha Ashok;** Synthesis, structure and total conductivity of A-site doped $LaTiO_{3-\delta}$ perovskites; *Journal of Alloys and Compounds* 626 (245–251) 2015

43. M. Bradha, T. Vijayaraghavan, S.P.Suriyaraj, R. Selvakumar, **Anuradha M. Ashok**; Synthesis of photo catalytic $La_{(1-x)}A_xTiO_{3-\delta}$ (A= Ba, Sr, Ca) nano perovskites and their application for photo catalytic oxidation of congo red dye in aqueous solution; *Journal of Rare Earths* 33, 2 (160-167) 2015

44. Dinesh V. P., Biji Pullithadathil, **Anuradha Ashok,** Sandip Dhara, Kamruddin Mohammed, Ashok Kumar Tyagi and Baldev Raj; Plasmon–Mediated, Highly Enhanced Photocatalytic Degradation of Industrial Textile Dyes using Hybrid ZnO@Ag Core-shell Nanorods *RSC Adv.*, 4 (58930-58940) 2014

45. Bradha, M, Hussain, S, Sujay Chakravarty, G Amarendra, **Anuradha Ashok**; Total conductivity in Sc doped $LaTiO_{3+\delta}$ perovskites; *Ionics* 20 (1343–1350) 2014

46. M. Bradha, T. Vijayaraghavan, **Anuradha Ashok**; Synthesis and total conductivity studies in $BaSnO_3$; *Materials Letters* 125 (187–190) 2014

47. **Anuradha M. Ashok**, Camilla Haavik, Poul Norby, Truls Norby, Arne Olsen; Vacancy ordering and superstructure formation in dry and hydrated strontium tantalate perovskites: A TEM perspective; *Micron* 62 (11–27) 2014

48. R. Selvakumar, S. Aravindh, **Anuradha Ashok** and Yekkuni L. Balachandran; A facile synthesis of silver nanoparticles with SERS and antimicrobial activity using *Bacillus subtills* exopolysaccharides; *Journal of Experimental Nanoscience*. Volume 9. Issue 10 (1075-1087) 2014

49. Priya Gopinathan, **Anuradha M. Ashok**, R. Selvakumar; Bacterial flagella as biotemplate for the synthesis of silver nanoparticle impregnated bio nanomaterial; *Applied Surface Science* 276 (717–722) 2013

50. **Anuradha Ashok**, Nadezhda Kochetova, Truls Norby, Arne Olsen; Structural study of the perovskite system $Ba_{6-y}Ca_yNb_2O_{11}$ hydrated to proton conducting $Ba_{6-}Ca_yNb_2O_{10}(OH)_2$; *Solid State Ionics* 179 (1858-1866) 2008.

Total Number of Conference Papers/Proceedings: 65

Facilities established at PSG IAS:

- JEOL JEM-2100 High Resolution Transmission Electron Microscope with Oxford Energy dispersive X-Ray spectrometer and Gatan Orius CCD camera
- TEM specimen preparation equipments with Gatan PIPS, Fischione Electropolisher dimple grinder etc.
- NETZSCH STA 449 F3 Jupiter simultaneous thermal analyser for thermogravimetric and differential scanning analysis (Netzsch, Germany)
- ZEM 3 M10 Seebeck and high resistivity measurement system (Ulvac, Japan)
- Muffle Furnace (Swamequip, Chennai, India)
- High temperature tubular furnace (Ants ceramics, Mumbai, India)
- HMS-3000 Hall measurement system with high temperature sample stage (HT55T5) (Ecopia Corp. Korea)
- High temperature muffle furnace capable of heating upto 1500^{o}C (Indfurr, India)

Memberships in professional bodies:

Name of Society	**Type of membership**
Scandinavian society of Electron Microscopy	Past member (2002-2007)
Materials Research Society of India	Life Member
Electron Microscopy Society of India	Life Member
Institute for Smart Structures and Systems	Life Member

Workshops/seminars conducted

1. We have been conducting Two day workshops on High Resolution Transmission electron Microscopy and Scanning Probe Microscopy periodically at PSG Institute of Advanced studies, Coimbatore two times in a year from 2014 to 2019 (**Role: Convener**).
2. Two day seminar on "Solar Installations, Economics, Business opportunities and New Trends in Solar Energy Systems" held on 18th and 19th Aug 2016 at PSG IAS, Coimbatore **(Role: Co-convener)**
2. Two day workshop on "Nanomaterial characterization techniques" conducted by PSG College of Pharmacy on 11 and 12 August 2016 **(Role: Co-convener).**
3. IUSSTF funded Indo-US bilateral workshop on nanomaterials for clean energy generation and storage conducted from 10th to 12th January 2018. (**Role: Convener**)
4. DRDO sponsored "Two day symposium on thermoelectric materials, devices and systems" Conducted by NRIIC, and Dept. of Physics, PSG College of Technology on 10 and 11 Dec 2018 **(Role: Organizing secretary)**
5. Indo-US workshop on metal additive manufacturing-technology Gaps and Research Directions on 16-18 December 2019 **(Role: member of the local organizing committee)**

6. Two day international seminar on Sustainability issues Water and Energy- nanotechnology solutions 2019 **(Role: member of the local organizing committee)**
7. "One day training program on High resolution transmission Electron Microscopy" on 18 Aug 2022 at PSG IAS (**Role: Convener**)
8. "One day training program on Scanning Electron Microscopy and X-Ray Diffraction" on 16 Sept 2022 at PSG IAS (**Role: Convener**)
9. Conducted "Two day workshop on Electron Microscopy" on 19 and 20 Aug 2024 (**Role : convener and resource person**)