Short Bio data

Dr. K. Ramesh

Dr. Ramesh has joined the Department of Physics, Indian Institute of Science (IISc), Bangalore, in August 1988 after completing his M.Sc. (Physics) from Bharathidasan University, Trichy, in 1987. He obtained his Ph.D. from the Indian Institute of Science, Bangalore, in June 1999. He was a Postdoctoral Fellow at Alfred University, New York, USA from July 2000 to August 2001 and a Visiting Scientist at Ultimosoft Solutions, CA, USA, during June 2006 to September 2007.

Currently, he is a Chief Research Scientist in the Department of Physics, IISc, Bangalore. He has completed **15** research projects funded by various funding agencies like, DST, CSIR, DBT, RCI, DRDO and ISRO and is currently managing two ongoing projects. He has published over **160** publications in peer reviewed international journals. A patent on "Cubic Phase Tin(IV) Oxide for Trace Level Gas Sensing" (Patent Number 552580: Filed: 28-02-2024) was granted on 18-10-2024. Delivered invited talks in many National and International Conferences. His research students won best poster awards and presentation awards in many conferences. He has mentored many Postdoctoral Fellows, Project Assistants, undergraduate, and Postgraduate students. He is a Governing Council Member, Research Council Member, Doctoral Committee Member and Board of Studies Member in many Colleges and Universities.

No. of Ph.D. Students: 07 (Awarded)
No. of Ph.D. Students: 08 (Present)
No. of Postdoctoral Fellows: 01 (Present)
No. of Project Assistants: 02 (Present)
No. of Under Graduate (UG) students: 02 (Present)

Teaching Undergraduate and Postgraduate Physics Students

Research interest:

- Structure property relations in chalcogenide glasses
- Glass formation and glass transition in chalcogenide systems
- Phase change and electrical switching properties chalcogenide glasses
- Thermoelectric properties of chalcogenide glasses
- Infrared detection and sensing properties of semiconducting chalcogenide glasses
- Shift of glass transition temperature under high pressure
- Phase transition of solids at elevated pressures and temperatures
- Photovoltaic materials (SnS based and Perovskite based solar cells)
- Gas sensing
- Synthesis of nano structured carbon nitrides.

Important contributions

(i) Main research interest is on the structure-property relations in chalcogenide glasses. Glass formation, phase change memory (PCM), physical ageing properties and Infrared transmission in both bulk and thin films of chalcogenide glasses are of interest. Exploring chalcogenide glass for an on-chip nonlinear process to generate broadband light has been initiated. Additionally, we started working on multi layered chalcogenide thin films for low power phase change memory applications through defect engineering.

(ii) Preparation of chalcogenide glasses using rapid quenching techniques enables his group to prepare glasses in the extended region of the glass forming region, which unravels many interesting properties.

(iii) The observation of a negative pressure coefficient of glass transition in chalcogenide glasses is significant in understanding the nature of glass transition.

(iv) Large diameter (60 mm diameter) Ge-Se-Te glass with IR transmission up to 18 microns has been prepared for space and defence applications. The IR transmission % is also about 60%.

(v) Cubic phase of SnO_2 is a high pressure phase which forms at a pressure of about 41 GPa. The stable SnO_2 phase, which forms at ambient conditions, is tetragonal in structure. By adopting a simple technique with minimal tuning of preparation conditions, a stable cubic phase of SnO_2 has been prepared at ambient conditions, exhibiting superior properties.

(vi) Gas sensor device based Cubic Phase SnO2 has been developed. Trace-level sensing of toxic carbon monoxide gas has been achieved down to a 1ppb level.

(vii) The direct transition of $Ge_2Sb_2Te_5$(GST) to the stable hexagonal phase when doped with Se is an important observation. This work demonstrates that the transition to the metastable cubic phase is not a necessary condition for achieving fast and efficient phase change in non-volatile memory applications.

(viii) The effect of atomic size on the phase change properties has been studied on the Ge-Te system by replacing the bigger atom, Te, with a smaller atom, Se.

(ix) Exploring chalcogenide glasses and glass ceramics for thermoelectric applications.

(x) Their group also prepared carbon nitride (C_3N_4), which is predicted to be an ultrahard material with nitrogen atomic % as close to the stochiometric composition.

(xi) The contribution to solar cell materials is significant. His groups' work on SnS (non-toxic) solar materials is highly cited.

(xii) Studies on the ageing effect in chalcogenide glasses and their relation to fragility are also significant. Found a correlation between fragility minimum and IR transmitting properties.

Governing Council Member (2024 and 2025), T. John Institute of Technology, Bangalore.
Research Advisory Board Member: Dhanalakshmi Srinivasan University, Samayapuram, Trichy, Tamil Nadu.
Research Board Member: MES College of Arts, Science and Commerce, Malleswaram, Bangalore.
Board of Studies Member (BOS) for M.Sc., Physics Program for the following Universities and Colleges:

(i) Reva University, Yelahanka, Bangalore.
(ii) Presidency University, Bangalore.
(iii) Dr. N.G.P. Arts and Science College, Kalapatti Main Rd, Coimbatore, Tamil Nadu.

(iv) Vivekanandha Arts and Science College for Women, Sankari, Tamil Nadu.
(v) Er. Perumal Manimekalai College of Engineering, Department of Science and Humanities, Hosur, Tamil Nadu.
(vi) Ananthalakshmi Institute of Technology and Sciences, Ananthapur, Andhrapradesh.

In the last 5 years delivered invited talks and lectures in many Universities and Colleges. Few colleges and universities are given below:

1. Christ University, Bangalore.
2. CGCRI, Kolkatta, West Bengal.
3. CMR Institute of Technology, Bangalore.
4. St. Joseph's College, Tiruchirappalli, Tamil Nadu.
5. Nehru Memorial College, Tiruchirappalli, Tamil Nadu.
6. SRM TRP Engineering College, Tiruchirappalli, Tamil Nadu.
7. Alagappa College Arts and Science, Karaikudi, Tamil Nadu.
8. Dayananda Sagar University, Bangalore.
9. Basaveshwar Engineering College, Bagalkot, Karnataka
10. BGS College of Engineering & Technology (BGSCET), Bangalore.
11. BMS College of Engineering, Bangalore.
12. MES College of Arts, Science and Commerce, Bangalore.
13. MVJ College of Engineering, Bangalore.
14. Jyoti Nivas College, Bangalore.
15. Kristu Jayanti College, Bangalore.
16. Presidency University, Bangalore.
17. Reva University, Bangalore.
18. Surana College, Bangalore
19. Kalasilingam University, Krishnan Koil, Tamil Nadu.
20. Chennai Institute of Technology, Chennai, Tamil Nadu.
21. CMR Institute of Technology, Bangalore.
22. Vivekanandha Arts and Science College for Women, Sankari, Tamil Nadu.
23. Vivekanandha Arts and Science College, Elampalayam, Erode. Tamil Nadu.
24. Dr. N.G.P. Arts and Science College, Coimbatore, Tamil Nadu.
25. Thiruvalluvar Government Arts College, Rasipuram, Namakkal, Tamil Nadu.
26. Nadar Saraswathi College of Arts & Science, Theni, Tamil Nadu.
27. PSG College of Technology, Coimbatore, Tamil Nadu.
28. PSG College of Arts & Science, Coimbatore, Tamil Nadu.
29. PMC College of Technology, Hosur, Tamil Nadu.
30. Government College of Engineering, Bargur, Tamil Nadu.
31. PVKK Institute of Technology, Anathapur, Andrapradesh.
32. JNTUA College of Engineering, Anathapur, Andhrapradesh.
33. Sri Ramanujan Institute of Technology, Anathapur, Andhrapradesh.
34. Anantha Lakshmi Institute of Technology and Sciences, Anathapur, Andhrapradesh.
35. Sir C.V. Raman Institute of Technology and Sciences, Tadipatri, Andhrapradesh.
36. Mahatma Gandhi Institute of Technology, Gandipet, Hyderabad.

Reviewed papers for following International Journals:

ACS Applied Electronic Materials
Advanced Optical Materials
Applied Physics A
Bulletin of Materials Science
Chemical Engineering Journal
International Journal of Applied Glass Science
Journal of Non-Crystalline Solids
Journal of Physics and Chemistry of Solids
Journal Applied Physics
Journal of American Ceramic Society
Journal of Physical Chemistry B
Journal of Alloys and Compounds
Journal of Applied Physics
Journal of Inorganic and Organometallic Polymers
Journal of Luminescence
Materials Chemistry and Physics
Materials Research Bulletin
Materials Today: Proceedings
Materials Science and Engineering-B
Optical Materials Express
Physica B
Progress in Organic Coatings
Small
Small Methods
Solar Energy
The European Physical
Vacuum

Reviewed projects for SERB DST.
Thesis examiner for many Colleges and Universities
Doctoral Committee Member for many Colleges and Universities

Sponsored Projects

Sl.No.	Title	Agency	DURATION	Value(Rs)	Role	Co-PI
ON-GOING PROJECTS						
1	Tellurium based chalcogenide glasses: an emerging material for infrared applications	DST	2022-2025	42,28,224	PI	-
2	Development of IR transmitting chalcogenide glasses of diameter (30 and 60 mm) for space applications	LEOS, ISRO, Bangalore	2025-2028	29,51,820	PI	Shri. Srinivasa Rao, LEOS, ISRO
COMPLETED PROJECTS						
1	Thermally Stable Ge-Se-Te Semiconducting glasses for IR light transmission	RCI, Hyderabad	2021-2023	1,98,35,507	PI	Dr. K. Satyavathi (RCI)
2	A large volume furnace for High temperature powder X-ray diffraction studies	DST	2018-2021	38,87,700	PI	Nil

3	Semiconducting Glasses to Harvest Waste Heat Energy	CSIR	2019-2022	63,51,170	PI	Dr. Annapurna (CGCRI)
4	Thermally stable semiconducting glasses for IR light transmission	JATP	2018-2021	12,06,000	PI	Dr. Shivpal Singh (DRDO)
5	Physical ageing, intermediate phases and phase change properties of chalcogenide glasses	DST	2013-2017	53,95,000	PI	Nil
6	New synthesis route to prepare infrared transmitting bulk chalcogenide glasses and glass ceramics	ISRO	2015-2017	14,32,900	PI	Dr. Amit Vikram(ISRO)
7	Synthesis of nanostructured carbon nitrides	DST	2013-2016	14,32,800	PI	Prof. R.C. Mallik (IISC)
8	Preparation of carbon nitrides for space applications	ISRO	2013-2015	17,32,130	PI	Dr. MVN. Prasad (ISRO)
9	Room temperatures gas sensors based on chalcogenide compounds	JATP	2008 -2009	1,00,000	PI	Nil
10	Off-line approach to non-contact IR sensor technique for estimation of sugars and its byproducts	DBT	2007-2010	15,59,000	CI	PI: Dr. R. Ganesan (IISC)
11	Infrared transparent chalcogenide glasses: Materials to see beyond visible	ISRO	2011-2013	17,00,000	PI	Dr. H. Rao, ISRO
12	High temperature powder x-ray diffraction studies on some advanced materials and its associated instrumentation	DST	2006-2010	11,39,808	PI	Prof. H.L. Bhat
13	Investigation of rigidity percolation and type conversion in chalcogenide glasses over extended composition range obtained by rapid quenching	CSIR	2004-2007	8,93,000	PI	Prof. K.S. Sangunni (IISC)

List of Publications

Published over 160 peer reviewed papers in International Journals. The list gives the publications in the last 5 years.

1. R. Kemparaju, Rohit, Siddhant Singh, Akila Prabhudesai, M. Madesh Kumar, K. Ramesh, Structure-property relationships and phase-change properties of GeTe-Al2Te3 alloys, Materials Research Bulletin (**Accepted**).

2. Manikandan Dhamodaran, Raja N, Srilatha Y, Uma Devi, Vijaya Kumar Kambila, Akla Prabhudessai, Ramesh Karuppannan, Influence of Copper Substitution on the Electronic Structure and Magnetic Properties of SnO2 Quantum Dots: An Experimental and DFT Insights, Next Materials (**Accepted**).

3. Swapnil Barthwal, Siddhant Singh, Kumar Haunsbhavi, Ramashanker Gupta, Vadhana V. Sharon, Shivaraj Maidur, Abhishek K. Chauhan, David E. Motaung, Rahul kumar, and K. Ramesh Scientific advancements in Antimony Selenosulfide Solar Cells, Journal of Materials Chemistry C, 14 (2026) 17-45.

4. Manikandan Dhamodaran, Rahul Kumar Yadav, N. Raja, Ramesh Karuppannan, Rajeev Gupta, Probing the local atomic structure and magnetism in Iron and manganese co-

doped indium oxide Nanocubes using XAS and DFT, Journal of Magnetism and Magnetic Materials, 641 (2026) 173814.

5. Keshav Kumar Sharma, Ashutosh Ujjwal, Rohit Saini, and Ramesh Karuppannan, Enhanced Performance and Stability of Perovskite Solar Cells with Ag-Cu-Zn Alloy Electrodes, Energy Technology, 14 (2026) e202501392.

6. Keshav Kumar Sharma, Deepak Sharma, Danil W. Bukhvalov, Upanya Khandelwal, Pavan Nukala, Navakanta Bhat and Ramesh Karuppannan, Synthesis of Nanostructured Cubic Phase SnO2 Thin Film and Its Trace-Level Sensing of CO Gas, Nature Communications, 17 (2026) 82.

7. Dhinakaran Veeman, Gokulakrishnan Sriram, Mohan Kumar Subramaniyan, J.P. Oliveira, K. Ramesh, Siva Shanmugam Nallathambhi, Micheal Agnelo Browne, Sarankumar Thanigainathan, Raman Kumar, Microstructure, mechanical properties and numerical analysis (tensile test) of multi-material fabricated by wire plus arc additive manufacturing, Welding International, 40 (2025) 47-58.

8. V. P. Priyanka, S.S. Hegde, R. Venkatesh, K. Ramesh, Mesoporous cubic SnS/rGO nanocomposites for enhanced heavy metal sensing and visible light-driven photocatalysis. Ionics, 31 (2025) 12005-12026

9. Nagiri Rajesh, Sudireddy Swathi, Thottathil Sasi Varun, Machinao Sochannao, Pal Vijayeta, Anoop AncharaVeettil, Meena Dilip, Ponnada Srikanth, Karuppannan Ramesh, Rapaka Subash Chandra Bose, Semiconducting Bi?Te?-Semimetallic Sb Flexible Thermoelectric Generator Achieving High Power Density for Wearable Energy Harvesting, ACS Applied Energy Materials, 8 (2025) 17187-17191

10. Varun Thottathil Sasi, Sochannao Machinao, Rasmi Thushara, Anoop Anchara Veettil, Devarajan Alagarasan, Vijayeta Pal, Malini Kalappattil Aravindan, Bhuvanesh Srinivasan, Ramesh Karuppannan, and Subash Chandra Bose Rapaka, High-Performance Flexible Thermoelectric Generator via Rapid Evaporation of Nanocrystalline Bi2Te3 Alloy Films, ACS Appl. Energy Mater. 8 (2025) 13185-13190.

11. K. S. Nivedhitha, T. Beena, B. Lalitha, D. Palaniswamy, Manzoore Elahi M. Soudagar, K. Ramesh, M. A. Umarfarooq, R. Venkatesh, N. R. Banapurmath, and Leena V. Hublikar, Carbon-Based and Metal Hydride Materials for Advanced Hydrogen Storage: Progress, Challenges and Future Directions, Sustainable Energy & Fuels, 9 (2025) 5199 - 5217.

12. R. Kallega, R. Karupannan, and S. K. Selvaraja, "Optical Phase Transition in Tin Diselenide for Photonic Non-Volatile Memory Applications," in Conference on Lasers and Electro-Optics/Europe (CLEO/Europe 2025) and European Quantum Electronics Conference (EQEC 2025), Technical Digest Series (Optica Publishing Group, 2025), paper ce_13_3.

13. K K Sharma, R Rohit, S Machinao, K Ramesh, (111) Facet-engineered SnO2 as Electron Transport Layer for Efficient and Stable Triple-Cation Perovskite Solar Cells Sustainable Energy & Fuels, 9 (2025) 3102-3109.

14. R. Kemparaju, Rohit, Akila Prabhudessai, S. Charan Prasanth, M. Madesh Kumar, K. Ramesh, Electrical switching and phase change properties of GeTe-Al2Te3 chalcogenide alloys, Ceramics International, 51 (2025) 29046-29054.

15. Rakshitha Kallega, Roopali Shekhawat, K. Ramesh, Shankar Kumar Selvaraja, Controlled crystallization of thermal evaporated GST-on-SOI for photonic neuromorphic appllication, APL Materials 13 (2025) 051104.

16. Sushma Athokpam, Shivanand Madolappa, B.J. Fernandes, K. Ramesh, K.P. Ramesh, K.J. Mallikarjunaiah, Electrical conductivity and dielectric study of zinc substituted tellurium-vanadate oxide glass systems, Ceramics International, 51 (2025) 23267-23278.

17. K.S. Nivedhitha, T. Beena, R. Venkatesh, N.R. Banapurmath, K. Ramesh, Ashok M. Sajjan, N.H. Ayachit, Bipin S. Chikkatti, M.A. Umarfarooq, K. Subramanian, Manzoore Elahi M. Soudagar, Sagar Shelare, Shubham Sharma, Ehab El Sayed Massoud, Enhancing tunneling, microstructural morphology, and electrochemical performance of carbon fiber substituted ternary alloys (Mg-Ni-Ti) synthesized via mechanical alloying for hydrogen storage applications: Activation energy reduction and hydrophobic benefits, Journal of Power Sources, 640 (2025) 236525.

18. K.S. Nivedhitha, R. Venkatesh, N.R. Banapurmath, K. Ramesh, Ashok M. Sajjan, Bipin S. Chikkatti, M.A. Umarfarooq, M. Raja, K. Subramanian, Irfan Anjum Badruddin, Sarfaraz Kamangar, Graphene enhanced Mg-Ni-Ti nanocomposites for hydrogen storage application, International Journal of Hydrogen Energy, 102 (2025) 972-979.

19. Vijaya Talapatadur, S. S. Hegde, N. Basavaraju, K. Ramesh, Solvothermal method synthesized SnS nanoplates composites for electrochemical sensing of toxic ions Hg2+ and Pb2+, J. Iran Chem. Soc. 22 (2025) 231-242.

20. Dharita Chandravanshi, Dipanjan Kumar, Y. Kawamura, K. Ramesh, N. Ravishankar, Praveen C. Ramamurthy, Kamanio Chattopadhyay, Exploring composition space by Nb and Sn substitution, microstructure and Seebeck behaviour in Zr2FeNiSb2 double half-Heusler compound, J. Mater. Sci. 60 (2025) 2449-2463.

21. M. Murugesan, P. Devendran, N. Nallamuthu, K.R. Nagavenkatesh, C. Sambathkumar, K. Ramesh, Enhancing the electrochemical efficiency of Ni3V2O8 NPs synthesised by hydrothermal methods for supercapattery applications, Inorganic Chemistry Communications, 171 (2025) 113511,

22. Venkatesh Ramasamy, Prashantha Murahari, N. R. Banapurmath, N. H. Ayachit, K. Ramesh, K. S. Nivedhitha, Hitha D. Shetty, Chandramouli Vadlamudi & Sanjay Krishnappa, Structural, morphological, and photoluminescence properties of nitrogen-doped CNTs and graphitic carbon nanostructures, J. Mater. Sci. 59 (2024) 13532-13540.

23. M. Janpandit, R. Kallega, K. Ramesh, C.S. Thakur, S.K. Selvaraja, (2024). Sb_2Se_3 Based Non-volatile Memory for Photonic Matrix-Vector Multiplications. In: J. Witzens, J. Poon, L. Zimmermann, W. Freude, (eds) The 25th European Conference on Integrated Optics. ECIO 2024. Springer Proceedings in Physics, Vol. 402. Springer, Cham.

24. M. Murugesan, K.R. Nagavenkatesh, N. Nallamuthu, P. Devendran, K. Ramesh, Electrochemical investigation of orthorhombic structured $Mg_3(VO_4)_2$ nanoparticles

modified estimable electrode for high dense energy devices, Journal of Energy Storage, 89 (2024) 111652.

25. Akila G. Prabhudessai, Sathravada Balaji, Kaushik Biswas, A.R. Moll, S. Vinoth, K. Ramesh, Sutanu Dutta, Abhishek K. Chauhan, Siddhant Singh, Rana Dasgupta, Pratik Sarkar, K. Annapurna, Purification and investigation of tellurium rich Te-As-Se chalcogenide glass for extended far-infrared transmission, Journal of Non-Crystalline Solids, 642 (2024) 123093.

26. Sushma Athokpam, Brian Jeevan Fernandes, S Charan Prasanth, K. Ramesh, K.P. Ramesh, K.J. Mallikarjunaiah, Dual role of ZnO and its impact on thermal and structural properties of tellurium-vanadate glass system, Journal of Non-Crystalline Solids, 641 (2024) 123137.

27. Akila G. Prabhudessai, Sathravada Balaji, Sakthi Prasad, Shweta Chahal, Kaushik Biswas, K. Ramesh, Anupama Yadav, Saswata Chakraborty, Partha Sarathi Kongar, Sayan Chatterjee, Sutanu Dutta, Rana Dasgupta, Pratik Sarkar, K. Annapurna, Thermal, structural, and conductivity properties of $As_{14}Sb_{26}S_{60-x}(AgI)_x$ chalcogenide glasses, J. Appl. Phys. 135 (2024) 095107.

28. K.S. Nivedhitha, R. Venkatesh, N.R. Banapurmath, K. Ramesh, Ashok M. Sajjan, P.Bipin, S. Chikkatti, Yogesh, Abhilasha Jain, C. Nithya, "Exploring the influence of Single-Walled carbon nanotubes substituted Mg-Ti alloy for hydriding and dehydriding properties", International Journal of Hydrogen Energy 59 (2024) 272-281.

29. M. Murugesan, K. R. Nagavenkatesh, P. Devendran, N. Nallamuthu, M. Krishna Kumar, K. Ramesh, "Preparation and Electrochemical Investigation of NiO Hollow Sphere from Bio Waste (Sugarcane Bagasse) Extract for Energy Storage Applications", Journal of Inorganic and Organometallic Polymers and Materials (2024) https://doi.org/10.1007/s10904-024-03044-0.

30. Swapnil Barthwal, Siddhant Singh, Abhishek K Chauhan, K. Ramesh, "Design and simulation of CdS-free Sb2(S,Se)3 Solar cells, with efficiency exceeding 20%", ACS Sustainable Chem. Eng. 12 (2024) 947-958.

31. Vijaya Talapatadur, S.S. Hegde, B.S. Surendra, Prashantha Murahari, K. Ramesh, "A review of visible light active SnS photocatalyst for efficient photocatalytic water purification", Materials Today: Proceedings (2023) https://doi.org/10.1016/j.matpr.2023.08.368.

32. Manikandan Dhamodaran, Rahul Kumar Yadav, Ramesh Karuppannan, Murugan Ramaswamy, Danil W. Boukhvalovf, Ashok Kumar Yadav, Rajeev Gupta, "Dopant-activated magnetism and local structure properties of cubic shape Co, Mn: In2O3", Materials Science in Semiconductor Processing 168 (2023) 107818.

33. Swapnil Barthwal, Siddhant Singh, Abhishek K Chauhan, Nimitha S Prabhu, Akila Gajanan Prabhudesai, K Ramesh, "A Comprehensive Insight into Deep-Level Defect Engineering in Antimony Chalcogenide Solar Cells", Mater. Adv., 2023, 4, 5998-6030.

34. S Barthwal, R Gupta, A Kumar, K Ramesh, S Pathak, S Karak, Band offset engineering in antimony sulfide (Sb2S3) solar cells, using SCAPS simulation: A route toward PCE> 10%, Optik 282 (2023) 170868.

35. S Chahal, AG Prabhudessai, K Ramesh, Structural relaxation in IR transmitting (GeSe4) 100-x (As2Se3) x glasses, Journal of Non-Crystalline Solids 607 (2023) 122220.

36. SS Hegde, RSC Bose, BS Surendra, S Vinoth, P Murahari, K Ramesh, SnS-Nanocatalyst: Malachite green degradation and electrochemical sensor studies, Materials Science and Engineering: B 283 (2022) 115818.

37. SS Hegde, BJ Fernandes, V Talapatadur, KP Ramesh, K Ramesh, Facile synthesis of cubic SnS/rGO nanocomposites: Structural, optical, and photocatalytic properties, Materials Today: Proceedings 62 (2022) 5583-5588.

38. SS Hegde, BJ Fernandes, V Talapatadur, KP Ramesh, K Ramesh, Impedance spectroscopy analysis of SnS chalcogenide semiconductors, Materials Today: Proceedings 62 (2022) 5648-5652.

39. Shweta Chahal, Akila Gajanan Prabhudesai, Roopali Shekhawat, Vinoth Shanmugam and K. Ramesh, "Structure– property relationships in critically connected (GeTe4)100-x(As2Se3)x glasses" Dalton Transactions 51 (2022) 12100-12113.
40. R. Venkatesh, P. Murahari, N.R Banapurmath, K. Ramesh, "Preparation of bamboo-like carbon nitride nanotubes, spheres, and study of their structural, morphological and optical properties", Nano-Structures & Nano-Objects 30 (2022) 100878.

41. Dilip Kumar Meena, Rapaka S.C. Bose, S. Vinoth, K, Annapurna, K, Ramesh, Impact of melt solidification rate on structural and thermoelectric properties of n-type Bi2Te alloy, Applied Physics A 128 (2022) 1-11.

42. Manikandan Dhamodaran, Ramesh Karuppannan, Danil W.Boukhvalov, Muthu Senthil Pandian, Ramasamy Perumalsamy, "Morphology controlled synthesis of Fe and Mn co-doped In2O3 nanocubes and their Dopant-Atom effects on electronic structure and magnetic properties", Journal of Magnetism and Magnetic Materials 560 (2022) 169547.

43. Manikandan Dhamodaran, Ramaswamy Murugan, Danil W.Boukhvalov, Ramesh Karuppannan, Sivasubramani Vediyappan, Muthu Senthil Pandian, Ramasamy Perumalsamy, "Effect of vacancy defects on electronic structure and ferromagnetism in pristine In2O3 nanostructures: An experimental study and first-principles modeling", Materials Research Bulletin, 152 (2022) 111853

44. Dilip Kumar Meena, Rapaka S.C. Bose, K. Ramesh, Melt solidification rate-dependent structural and thermoelectric properties of Sb2Te3/Te nanocomposites, Journal of Alloys and Compounds, 902 (2022) 163767.

45. Shweta Chahal, K. Ramesh , Glass formation, thermal stability and fragility minimum in Ge-Te-Se glasses, Materials research Bulletin 152 (2022) 1118

46. Roopali Shekhawat, Vinod Erkkara Madhavan, Ramesh Karuppannan, " Improved thermal stability and direct hexagonal transition accompanied by metal-insulator transition in Arsenic substituted Ge2Sb2Te5", Journal of Alloys and Compounds, 910 (2022) 164897.

47. R. Packiaraj, Kamaraj Mahendraprabhu, P. Devendran, N. Nallamuthu, Baskaran Palanivel, K.S. Venkatesh and Ramesh Karuppannan, "Electrochemical Performances of ZnO-NiO-CuO Mixed Metal Oxides as Smart Electrode Material for Solid-State Asymmetric Device Fabrication", Energy Fuels, 36 (2022) 603-617.

48. Koteeswara Reddy Nandanapalli, Devika Mudusu, Ramesh Karuppannan, Yoon-Bong Hahn, Sungwon Lee, "Predominantly enhanced catalytic activities of surface protected ZnO nanorods integrated stainless-steel mesh structures: A synergistic impact on oxygen evolution reaction process", Chemical Engineering Journal, 429 (2022) 132360.

49. R. Venkatesh, Prashantha Murahari, N.R. Banapurmath, K. Ramesh "Growth of spherical carbon nitride with crystalline alpha and beta phases", Carbon Trends 5 (2021) 100079.

50. S.S.Hegde, B.S.Surendra, V.P. Priyanka, Prashantha Murahari, K.Ramesh, "SnS/LDPE Composite: A reusable floating photocatalyst for solar degradation of organic dyes", Materials Today: Proc. 47 (2021) 4255-4261.

51. Ho Soonmin, S.S. Hegde, K. Ramesh, J.K. Dongre, Yousaf Hameed Khattak, Xiang-Hua Zhang, Sadanand, D.K .Dwivedi, D.A. Oeba, 'Chalcogenides-based nanomaterials for solar cell s and dye sensitized solar cells', Chapter 8 in the book titled "Micro and Nano Technologies", Edited by Mohammad Mansoob Khan, Elsevier (2021), pp 185-218.

52. Roopali Shekhawat, Haritha Pamuluri, Vinod Erkkara Madhavan, Ramesh Karuppannan, "Structural transformation and phase change properties of Se substituted GeTe", Scientific Reports 11 (2021) 7604.

53. Rapaka S C Bose, Dilip K M, Paolo Mele and K Ramesh, "Role of grain alignment and oxide impurity in thermoelectric properties of textured n-type Bi-Te-Se alloy", J. Phys. D: Appl. Phys. 54 (2021) 235503.

54. K. Deva Arun Kumar, Dilip K. Meena, Rapaka S.C.Bose, Ramcharan Meena, Prashantha Murahari, Paolo Mele, K. Ramesh, "Optical and thermoelectric properties of Sb2Te3/ZnTe nanostructured composites" Journal of Alloys and Compounds 865 (2021) 158621.

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