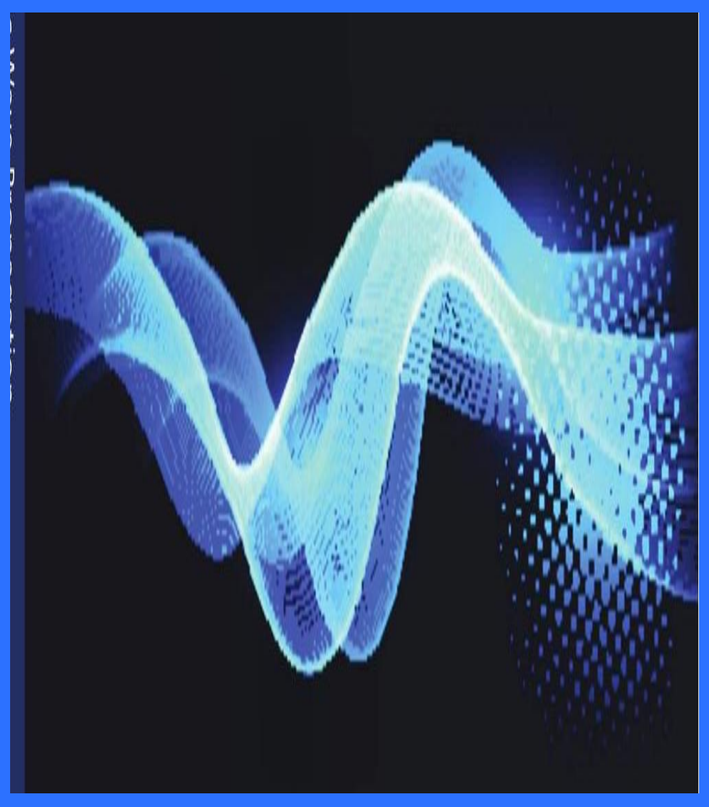


Newsletter

Propagation

Department of Physics @ CUTN

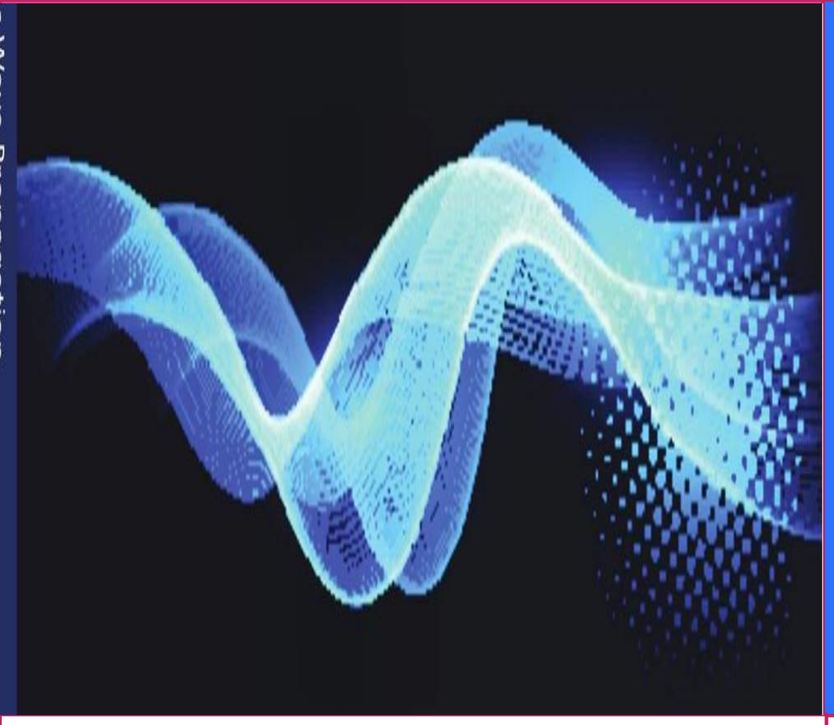
Published by

Department of Physics
Central University of Tamil Nadu,
Neelakudi,
Thiruvarur - 610 005

Editor: Prof. Dr. L. Kavitha

July 2021 to June 2022

Volume: 01 Issue : 01



Newsletter

Propagation

Year of Establishment 2009

I-MSc Students & PhD Scholars

Undergraduate/Integrated Programs : 140

Research Programs : 28

Research Activities

Total Project Funds Generated Rs. 100.57953 Lakh

Total Publications 738

Department of Physics

Professors

Prof. Dr. P. Ravindran
Prof. Dr. V. Madhurima
Prof.Dr. L. Kavitha (Head)

Assistant Professors

Dr. M. Ponmurugan
Dr. R. Arun
Dr. Venkata Saravanan

UGC-Assistant Professor

Dr. K. C. Shekhar

Contract/Guest Faculty

Dr. Antilen Jacob

Technical & Administrative Staff

Mr. A. Sulthan Ibrahim
Mr. R. Dhanaraj
Mr. M. Lakshmana Prabhu
Mr. Thirumeninathan
S. Kalidoss

Newsletter

Propagation

July 2021 to June 2022

Prof. Dr. P. Ravindran

&

Head
SCANMAT Centre

Area of Research

Computational Condensed Matter Physics

Project Funds Sanctioned

DST-SERB: ₹. 23,84,094
CSIR-EMRII: ₹. 20, 19, 667
SIU- Norway : NOK 19,99,540
RCN-Norway: NOK 34,38,000
RCN-Norway: NOK 1,61,863

Total Publications : 241
Citations : 8162
H-Index : 44

Publications in Journals

1. V.Sudarsanan, Anu Maria Augustine, and P.Ravindran, Investigation of Electronic Structure and Electrochemical Properties of Na2MnSiO4 as a Cathode Material for Na Ion Batteries, J. Phys. Chem. C, 125, 25968−25982 (2021)
2. Anu Maria Augustine, Vishnu Sudarsanan, P Ravindran, Ti Substitution in Li5FeO4: A Li-Rich Cathode Material for Li-Ion Batteries from First Principles Calculations, ECS Journal of Solid State Science and Technology, 10 (10), 101006(2021)
3. S Kiruthika, P Ravindran, Structural phase stability, electronic structure, magnetic properties and chemical bonding analysis of transition metal ammine borohydrides with amphoteric hydrogen for hydrogen storage. arXiv preprint arXiv:2104.08140 (2021) (https://arxiv.org/pdf/2104.08140.pdf)
4. M Periyasamy, L Patra, ØS Fjellvåg, P Ravindran, MH Sørby, S Kumar, Anja O Sjåstad, HelmerFjellvåg, Effect of Electron Doping on the Crystal Structure and Physical Properties of an n = 3 Ruddlesden–Popper Compound La4Ni3O10 , ACS Applied Electronic Materials (in press 2021) (https://doi.org/10.1021/acsaelm.1c00270)
5. G Kruthika, P Ravindran, Unravelling the crystal structure and optoelectronic properties of C3H3MI3 (M= Sn, Pb) for solar cell applications, Solar Energy Materials and Solar Cells 230, 111133 (2021)
6. Mukesh K Choudhary, P Ravindran, First principle design of new thermoelectrics from TiNiSn based pentanary alloys based on 18 valence electron rule, Computational Materials Science, 209, 111396, (2022).

Project Details

1. Novel Approaches to Magnetostructural phase transitions in Metallic systems (NAMM), Amount 161863 NOK (INR 12,93,835.70/), 2018 to 2023, Research Council of Norway (RCN).
2. Designing High Efficiency Thermoelectrics fromhigh entropy Half Heusler alloysusing defects and Disorder engineering, from 2021 to 2024, Amount . 28,42,400 INR, funded by SERB-CRG.

Collaboration

1. Centre for Materials Science and Department of Chemistry, University of Oslo, Norway.

Newsletter

Propagation

July 2021 to June 2022

Conference Proceedings

1. Vishnu Sudarsanan, Anu Maria Augustine, P Ravindran, A promising cathode material with high Na content for Na-ion battery applications from ab-initio calculations, AIP Conference Proceedings, 2369 (1), 020120, (2021).

2. PD Sreedevi, P Ravindran, Revealing the optoelectronic properties of tin-based vacancy ordered double perovskites: K2SnBr6 and Rb2SnBr6, AIP Conference Proceedings, 2369 (1), 020149, (2021).

Member of Journal Editorial board

Journal of American Chemical Society, Physical Review Letters, Physical Review B, Journal of Applied Physics, Applied Physics Letters, Journal of Solid State Chemistry, Computational Materials Science, Surface Science, Journal of Molecular Structure, European Journal of Inorganic Chemistry, The Journal of Physical Chemistry, Journal of Alloys and Compounds, International Journal of Hydrogen Energy, The European Physical Journal B, Journal of Physics Condensed Matter, Physica B, Physics Letters A, Phase Transitions, Journal of Physics and Chemistry of Solids, Materials Science and Engineering B, Physica Status Solidi B, Chemistry of Materials, Advanced Materials, Physica Scripta, Solid State Sciences, Journal of Zhejiang University-SCIENCE A, Angewandte. Chemie. International Edition, Nanotechnology, Nature Communication, Euro Phys. Lett, J. Magn. Mag. Mater., Materials Sciences and Applications, Materials Science in Semiconductor Processing, Progress in Natural Science: Materials International, Journal of Photochemistry & Photobiology, B: Biology, Advances in Condensed Matter Physics, Optik – International Journal for Light and Electron Optics, Journal of Chemical Physics, International Research Journal of Pure and Applied Chemistry, Nature-Scientific Reports, Nanoscale Advances, Catalysis Today.

Membership in Committees

1. Ex-Member – Executive Council of CUTN
2. Ex-Member – Academic Council of CUTN
3. Chairman, Research Advisory Committee, CUTN
4. Ex-Chairman for the technical committee for purchase at CUTN
5. Preparing question papers for CUCET entrance exam.
6. Ex-Selection committee member for faculty recruitment & non-teaching staffs in CUTN
7. Ex-Member – Building committee of CUTN
8. Member – Department promotion committee (Teaching & Nonteaching), CUTN.
9. Coordinator – Tree plantation in the Campus, CUTN
10. Coordinator – Innovation and Incubation Cell, CUTN.
11. Board of Study member for the Department of Materials Science, Madurai Kamaraj University.
12. Expert committee for the Physics text book for +1 and +2 for SERT, Tamil Nadu.
13. Ph.D examiner for at least five PhD students.

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Newsletter

Propagation

July 2021 to June 2022

Participation in FDP

1. Designing Functional and Nanomaterials for Renewable Energy Technologies Refresher Course in Physics & Nanotechnology, Bharathiar University, Coimbatore - 46, 08-14 September 2021
2. Density of States effects on optical processes in solids - an ab initio study Colloquium on Light-matter interaction at nanoscale Srinivasa Ramanujam Institute of Basic Sciences, Kottayam, 22-25 July 2021.
3. Designing High Efficiency Materials for Renewable Energy Technologies International Symposium on Modeling of Crystal Growth Processes and Devices (MCGPD - 2021), SSN Research Center, Chennai, India, 05-07 July 2021
4. 2nd Indo-Korea Virtual Conference on Development of Advanced, Materials for Future Technologies (DAMFT - 2021), Designing Advanced Functional and Nanomaterials for Energy Technologies, VIT Chennai, India, 14 – 15 May 2021
5. Grand Challenges for Sustainable Development National Science Day Celeberation 2021 CUTN, Dept. Phys, Thiruvarur 26.2.2021
6. Hydrogen Economy for Mitigation of Climate Change UGC Stride Free Virtual 10 Days FDP On "Mitigating Climate Change Central University of Tamil Nadu, Thiruvarur, India 26th April To 6th May 2021

Awards/Recognitions

- Among top 1% in International Ranking of Scientists (Applied Physics) as per Stanford university ranking

- Prof. P. Ravindran ranked 13th place in national level top researchers in Applied Physics- Elsevier has created a publicly available database of over 100,000 top scientists. Based on citations, h-index, co-authorship adjusted h-index, authorship position. Metrics with and without self-citations and the ratio of citations to citing papers are given. The selection is based on the top 100,000 by c-score (with and without self-citations) or a percentile rank of 2% or above.

Newsletter

Propagation

July 2021 to June 2022

Prof. Dr. V. Madhurima

Area of Research

Computational Studies of Molecular Interactions & Soft Matter Physics

Total Publications : 52
Citations : 310
H-Index : 11

Journal Publication

1. Swathi P V, Abdulkareem U, Thejus R Kartha, V Madhurima, Hydrogen Bonding in 1- Propanol-Ethanol Binary Mixture: Experimental and Modeling Approaches ChemistrySelect Article DOI: 10.1002/slct.202200413 Internal Article ID: 17394340 Article ID: SLCT202200413

Paper Presentation

1. AI Assisted Molecular Simulations International Workshop on Computational Materials Engineering (CME-2021) Tribhuvan University, Kathmandu, **Nepal** 6th October 2021Keynote Speaker & Advisor.
2. Pedagogical Problems in Teaching Physics SPVM ConVIRTUALisation Samahang Pisika ng Visayas at Mindanao (SPVM), **Phillipines** 30th October 2021 Invited Speaker.
3. Using AI to study the micron scale in milk colloidsInternational Conference on Material Science and Applied Physics (ICMSAP-2021) Pachhunga College, Mizoram University 22-24th November 2021 Invited Speaker
4. Stem: Narratives from the Field UN International Day of Women and Girls in Science, Southern Regional Committee of IAWS in collaboration with Tamil Nadu Science Forum 11th February 2022 Panelist – panel discussion
5. Using AI/ML for optimal utility of food resources National Seminar on Integrated approach in Science & Technology for sustainable future AMET &Indian Association of Aquatic Biologist (IAAB), Hyderabad28th February, 2022 Invited Speaker
6. "Gender equity in S & T for sustainable future" National Science Day 2022 Department of Women's Studies & RUSA 2.0 Thematic Research Projects – Social Sciences 28th February, 2022
7. Self-Assembly and Hierarchy National Science Day 2022Department of Physics, CUTN 28th February, 2022 Invited Speaker **Local**
8. Technology for Women Two Day National Online Women Summit 2k22" on Women Empowerment as a part of Women's Day celebrations KL University 9th March 2022
9. Organizational Gender Culture and Climate in Promotion of Science Organizational Gender Culture and Climate in Promotion of Science Tezpur University 11th March 2022 Invited Speaker

Newsletter

Propagation

July 2021 to June 2022

Chapters in Edited Volumes

1. V Madhurima COVID-19 Risks Deepening Existing Disparities in Indian Educational Institutions Higher Education Going Online Ed: Sujin Babu and Ram Ramaswamy Indian Academy of Science, Bengaluru ISBN: 978-81-950664-5-2 (2021) 53-56.

Membership in Committees

- Paper setter – National level testing (confidential)
- Selection Committee Member – Faculty recruitment – Ashoka University, Sonepat
- NAAC peer review committee member- Rani Chanamma University

Participation in FDP

1. One day national symposium on High Energy Physics SRM Amaravathi May 1st 2021

2. Metamaterials open new horizons in Electromagnetism John Pendry Jan 26th 2022 DDU-NASI FDP Program Online

Programs Organized

Indian Physics Association Colloqium Innovative Technologies & Applications IPA-CUTN https://youtu.be/0KqCjYYbb-w 3rd July 2021 Rachna Dave CUTN coordinator

Techno-Pedagogical Tools and Techniques MOOCs-ICT@CUTN 5-9th July, 2021V Madhurima (Coordinator) and K Biju (Event coordinator)

Project Details

1. Health and hygiene among rural women from October 2021 to October 2022, amount of Rs. 1,00,000/- funded by The National Academy of Sciences, (NASI)
2. Dispelling scientific myths among rural school children from October 2021 to October 2022, amount of Rs. 60,000/- funded by The National Academy of Sciences, (NASI)

Newsletter

Propagation

July 2021 to June 2022

Prof. Dr. L. Kavitha
Head of the Department

Area of Research

Nonlinear Dynamics & Nano Biomaterials

Project Funds Sanctioned

UGC-DAE: ₹. 4,07880/-
CSIR: ₹. 24,41,800
DST-SERB: ₹. 6,60,000

Total Publications : 158
Citations : 2980
H-Index : 33

Award and Recognition

- Regular Associate of the Abdus Salam, International Centre for Theoretical physics (ICTP), Italy
- Elected as a fellow of the Academy of Sciences, Chennai (2018) by the government of Tamil Nadu, India

Publications in Journals

1. P. Saravanakumar, S. Ramya, E. Shinyjoy, L. Kavitha, P. Manoravi, and D. Gopi, “Novel Strategy for Gallium-Substituted Hydroxyapatite/Pergularia daemia Fiber Extract/Poly(N vinylcarbazole) Biocomposite Coating on Titanium for Biomedical 2021 19 Applications”, ACS Omega, (2021), Impact Factor: 3.512. https://doi.org/10.1021/acsomega.1c02186.
2. S. Sridevi, S. Sutha, L. Kavitha, D. Gopi, “Valorization of biowaste derived nanophase yttrium substituted hydroxyapatite/citrate cellulose/ opuntia mucilage biocomposite: A template assisted synthesis for potential biomedical applications”, Materials Chemistry and Physics, 125144, (2021) Impact Factor: 4.094. https://doi.org/10.1016/j.matchemphys.2021.125144.
3. C.M. Joy, N. Ayyappan, L. Kavitha, Dynamics of Peyrard Bishop model of DNA under the influence of solvent interaction, Materials Today: Proceedings, Volume 51, Part 4, 2022, Pages 1777-1781, https://doi.org/10.1016/j.matpr.2021.03.601, Impact Factor: 1.211.
4. Geo sunny, Kavitha L, “Modulational instability induced generation of solitary wave profile of an anisotropic-ferromagnetic nanowire with asymmetric Dzyaloshinskii-Moriya interaction”, https://doi.org/10.1016/j.matpr.2020.10.778, Materials Today: Proceedings.
5. I. Panneer Muthuselvam, K. Saranya, Deepa Kasinathan, R. N. Bhowmik, , L. Kavitha, Magnetic spin order in the honeycomb structured Pb6Co9(TeO6)5 compound, PHYSICAL REVIEW B 104, 174442 (2021)
6. C.Boopathy, L.Kavitha, R.Ravichandran, Nonlinear modelling of soliton collision dynamics for blood flow in a artery, Volume 51, Part 4, 2022, Pages A1-A13. https://doi.org/10.1016/j.matpr.2022.03.213. Impact Factor: 1.211.
7. M. Kailas, T. Pavithra, K. Raghavi and L. Kavitha, "A Study on Sagdeev Pseudopotential and

8. Electrostatic Potential of Solitons in Four-Component Magnetized Dusty Plasma," in IEEE Transactions on Plasma Science, vol. 50, no. 6, pp. 1460-1463, June 2022, doi: https://doi.org/10.1109/TPS.2021.3132625.Impact Factor: 1.309.

9. K. Raghavi and L. Kavitha, "Modulational Instability Analysis of Four-Component Dusty Plasma System," in IEEE Transactions on Plasma Science, vol. 50, no. 6, pp. 1454-1459, June 2022, doi: https://doi.org/10.1109/TPS.2021.3122447.Impact Factor: 1.309.

10. L. Kavitha · T. Pavithra · C. Boopathy ·V. Senthil Kumar · Awadhesh Mani · D. Gopi, Current-driven magnetization reversal dynamics andbreather-like EM soliton propagation in biaxial anisotropicweak ferromagnetic nanowire, Nonlinear Dyn (2022) 107:2667–2687, https://doi.org/10.1007/s11071-021-06997-w.Impact Factor: 5.741

11. P.Saravanakumar, S.Ramya, E.Shinyjoy, L.Kavitha, P.Manoravi, D.Gopi,Biogenic synthesis of hydroxyapatite/Muca floral sap for biomedical applications, Volume 312, 1 April 2022, 131702, Materials Matter, https://doi.org/10.1016/j.matlet.2022.131702. Impact Factor: 3.423.

12. M.Mathina,,E.Shinyjoy, S.Ramya, L.Kavitha, D.Gopi, Multifunctional crab shell derived hydroxyapatite/metal oxide/polyhydroxybutyrate composite coating on 316L SS for biomedical applications, Volume 313, 15 April 2022, 131701, Materials Matter, https://doi.org/10.1016/j.matlet.2022.131701. Impact Factor: 3.423.

13. Ramachandran Raji, Shinyjoy Elangomannan, Ramya Subramani, Kavitha Louis, Manoravi Periasamy, and Gopi Dhanaraj, Calotropis Gigantea Fiber-A Biogenic Reinforcement Material for Europium Substituted Hydroxyapatite/Poly(3,4- propylenedioxythiophene) Matrix: A Novel Ternary Composite for Biomedical Applications, ACS Omega 2022, 7, 6024 6034.

14. Geo sunny, Kavitha L, “Modulational instability induced generation of solitary wave profile of an anisotropic-ferromagnetic nanowire with asymmetric Dzyaloshinskii-Moriya interaction”, https://doi.org/10.1016/j.matpr.2020.10.778, Materials Today: Proceedings. Impact Factor: 1.211

15. C.M. Joy, N. Ayyappan, L. Kavitha, Dynamics of Peyrard Bishop model of DNA under the influence of solvent interaction, Materials Today: Proceedings, Volume 51, Part 4, 2022, Pages 1777-1781, https://doi.org/10.1016/j.matpr.2021.03.601, Impact Factor: 1.211

16. N. Ayyappanand L. Kavitha and Christy Mariya Joy, “Stability analysis of DNA with the effect of twist and Morse potential”, Materials today: Proceedings, Volume 51, Part 4, 2022, Pages 1793 1796(http://dx.doi.org/10.1016/j.matpr.2021.05.427), Impact Factor: 1.211

17. R. Priya, L. Kavitha, Solitons in nerve axons, Materials Today: Proceedings, Volume 51, Part 4, 2022, Pages 1782-1787, https://doi.org/10.1016/j.matpr.2021.04.060.Impact Factor: 1.211

18. Saranya K, Kavitha L, “NiS2 as a cost effective counter electrode for dye sensitized solar cell”, https://doi.org/10.1016/j.matpr.2020.11.910, Materials Today: Proceedings. Impact Factor: 1.211

Dr. M. Ponmurugan
Assistant Professor

Area of Research

Statistical Mechanics
&
Computational Physics

Total Publications : 35
Citations : 225
H-Index : 06

Newsletter

Propagation

July 2021 to June 2022

Publications in Journal

1. "Monte Carlo investigation of phase changes and the order of transition of Ising modeled single-walled nanotube" A Arul Anne Elden and M Ponmurugan, The European Physical Journal Plus 137 (5), 529 (2022). https://doi.org/10.1140/epjp/s13360-022-02749-w

2. "The invariant-based shortcut to adiabaticity for qubit heat engine operates under quantum Otto cycle" T Kiran and M Ponmurugan, The European Physical Journal Plus 137 (3), 15 (2022). https://doi.org/10.1140/epjp/s13360-022-02592-z

3. "Optimized Coefficient of performance of Power law dissipative Carnot like Refrigerator" K Nilavarasi and M Ponmurugan, Physica A: Statistical Mechanics and its Applications 590, 126700 (2022). https://doi.org/10.1016/j.physa.2021.126700

Participation in FDP:

- UGC STRIDE Virtual 10 days FDP (26th April to 6th May2021) on MITIGATING CLIMATE CHANGE organized by the Central University of Tamil Nadu, Thiruvarur in Association with UGC STRIDE.

- Orientation Program on Quantum Computing: An Emerging Specialization for aspiring Physicists and Mathematicians, organized by School of Science and Technology, The Neotia University (TNU), India as held on 17th April, 2021.

Newsletter

Propagation

July 2021 to June 2022

Dr. R. Arun
Assistant Professor

Area of Research

Quantum Interferences, Cavity QED & Quantum Computation

Total Publications : 16
Citations : 211
H-Index : 07

Participation in Faculty Development Programme

- Attended a 2-Week Refresher Course "UGC-Sponsored Refresher Course in Physics (Online)", from 16.08.2021 to 28.08.2021, organized by Human Resource Development Centre, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh.

- Attended a 2-Week Refresher Course "UGC-Sponsored Online Refresher Course in Effective Teaching Skills", from 04.03.2022 to 17.03.2022, organized by Human Resource Development Centre, Pondicherry University, Puducherry.

Papers presented

Poster Presentation: Entanglement Protection Via Quantum Interferences, Anjali N. Nair and R. Arun, (Online) International Conference on Advanced Physics 2021 (IEMPHYS 2021), organized by Institute of Engineering & Management, Kolkata, India, April 1-3, 2021.

Dr. K. Venkata Saravanan
Assistant Professor

Area of Research

Experimental Condensed Matter Physics

Total Publications : 54
Citations : 389
H-Index : 12

Newsletter

Propagation

July 2021 to June 2022

Publications in Journal

1. Vineetha. P, Roshan Jose, Ammu Vijay, Charan Prasanth S and K. Venkata Saravanan, " Enhanced relaxor behavior and high energy storage efficiency in niobium substituted (Ba0.85Ca0.15)(Zr0.1Ti0.9)O3 ceramics", Materials Research Express, Volume 09, 066303, 2022. https://doi.org/10.1088/2053-1591/ac7637
2. 2. Ammu Vijay, Charan Prasanth S, Roshan Jose, Vineetha P, and Venkata Saravanan K, “A Study on the effects of La/Sm Codoping on the Structural and High temperature Thermoelectric Properties of n-type CaMnO3-δ Perovskite”, Crystal Research and Technology 2022, 2200041. https://doi.org/10.1002/crat.202200041

Proceedings in Journal

1. S Charan Prasanth, Roshan Jose, Ammu Vijay, Vineetha P, and **Venkata Saravanan. K**, “Tuning thermoelectric properties of Nb and Ta co-doped $SrTiO_3$”, **Materials Today: Proceedings.** https://doi.org/10.1016/j.matpr.2022.04.908
2. Ammu Vijay, Roshan Jose, Charan Prasanth S, Vineetha P, and **Venkata Saravanan K**, “Effect of Lanthanum doping on the Thermoelectric Power Factor of $CaMnO_3$”, **Materials Today: Proceedings.** https://doi.org/10.1016/j.matpr.2022.04.794
3. S Charan Prasanth, Roshan Jose, Ammu Vijay, P Vineetha, and **K. Venkata Saravanan**, “An investigation of thermoelectric power factor of Mn and Nb doped SrTiO3 ceramics”, **Materials Today: Proceedings**. https://doi.org/10.1016/j.matpr.2020.12.178

Participation in Faculty Development Programmes

1. AICTE Training And Learning (ATAL) Academy FDP on "3D Printing & Design", Indian Institute of Information Technology Tiruchirappalli. February 01 and 05, 2021.
2. 13th Refresher Course in Materials Science (Online), UGC-Human Resource Development Centre, University of Mysore, Mysuru, Karnataka. September 16 to 29, 2021.
3. Two-Week, Online Interdisciplinary Refresher Course in “ADVANCED CONCEPTS IN DEVELOPING MOOCS”, Teaching Learning Centre, Ramanujan College, University of Delhi. October 06 to 20, 2021.

Newsletter

Propagation

July 2021 to June 2022

Dr. K.C. Sekhar
UGC- Assistant Professor

Area of Research

Semiconductors, Thin films & Nanostructures

Project Funds Sanctioned

UGC : ₹. 6,00,000
DST-SERB: ₹. 46, 19, 600

Total Publications : 72
Citations : 551
H-Index : 15

Publications in Journals

1. Silva, J. P.B, Negrea, R. F., Istrate, M. C., Dutta, S., Aramberri, H., Iniguez, J., Figueiras, F. G., Ghica, C., **Sekhar, K. C.** & Kholkin, A. L. (2021). Wake-up free ferroelectric rhombohedral phase in epitaxially strained ZrO_2 thin films. *ACS Applied Materials & Interfaces*, *13*(43), 51383-51392. (**I.F – 10.3**)
2. Gokulakrishnan, K. V. Alex, K. C. Sekhar, K. Kamakshi. Highly Sensitive, Cost Effective, and Flexible SERS Substrate Based on Green Synthesized GO/rGO for Pesticide Detection. ChemistrySelect. 2022, 25; 7(20): e202200348 (IF: 2.109)
3. S. Sugumaran, T. A. Divya, R. K. Sivaraman, C. S Bellan, K. C. Sekhar, M. F. Jamlos. Structure, morphology and I–V characteristics of thermally evaporated LaAlO3 nanostructured thin films. Journal of Materials Science: Materials in Electronics. 2022, 33 (12): 9085-100. (IF: 2.478)
4. J. P. Silva, K. C. Sekhar, R. F. Negrea, J. L. MacManus-Driscoll, L. Pintilie, Progress and perspective on different strategies to achieve wake-up-free ferroelectric hafnia and zirconia-based thin films. Applied Materials Today. 2022, 1; 26: 101394. (IF: 10.041)
5. J. P. Silva, K. C. Sekhar, R. F. Negrea, C. Ghica, D. Dastan, M. J. Gomes, Ferroelectric properties of ZrO2 films deposited on ITO-coated glass. CeramicsInternational. 2022, 1; 48(5): 6131-7. (IF: 4.527

Papers presented in Seminars/Conferences

1. Presented the paper titled ‘Effect of sputtering voltage on the photocatalytic activity of sputtered silver nanoparticle thin films’ at the **3rd International Workshop Advances on Photocatalysis (AdvPhotoCat-2021)** held during June 28-29, 2021 organized by IMT-Bucharest, Romania & Hellenic Mediterranean University (online)

2. Presented the poster titled ‘Surface plasmon enhanced photodegradation activity of copper nanoparticle thin film’ at the **International Conference on Advanced Material and Mechanical Characterization (ICAMMC-2021)** held during June 28-29, 2021 organized by IMT-Bucharest, Romania & Hellenic Mediterranean University (online)

Newsletter

Propagation

July 2021 to June 2022

Member of Journal Reviewer/Editorial board:

- Journal of Alloys and Compounds
- ACS Applied Electronic Materials
- ACS Applied Materials & Interfaces
- Applied Surface Science
- Plasmonics
- Materials Today Chemistry
- Journal of Materials Science: Materials in Electronics
- Non-crystalline Solids
- Physica Status Solid A

Newsletter

Propagation

July 2021 to June 2022

Dr. Nirbhay Kumar Behera
Assistant Professor

Area of Research

Experimental High Energy Physics

Total Publications : 259
Citations : 40276
H-Index : 107

Publications in Journal

N. K. Behera and M. J. Kweon, ``Constructing probability density function of net-proton multiplicity distributions using Pearson curve method," Eur. Phys. J. A **58** no.3, 43,(2022). doi:10.1140/epja/s10050-022-00696-9.
Citation Index: 4

Dr. MALAY DALUI

Area of Research

Atomic, Molecular and Optical Physics

Publications in Journal

A. Autuori, D. Platzer, M. Lejman, G. Gallician, L. Maeder,A. Covolo, L. Bosse,**M. Dalui**, D. Bresteau, J.-F. Hergott,O. Tcherbakoff, H.J. B. Marroux, V. Loriot, F. Lepine, L. Poisson,R. Taieb, J. Caillat, P. Salieres, Anisotropic dynamics of twophoton ionization: Anattosecond movie of photoemission, **Science Advances**, 8, eabl7594 (2022). (https://www.science.org/doi/10.1126/sciadv.abl7594)

Newsletter

Propagation

July 2021 to June 2022

Dr. Sampurn Anand
Assistant Professor

Area of Research

Cosmology

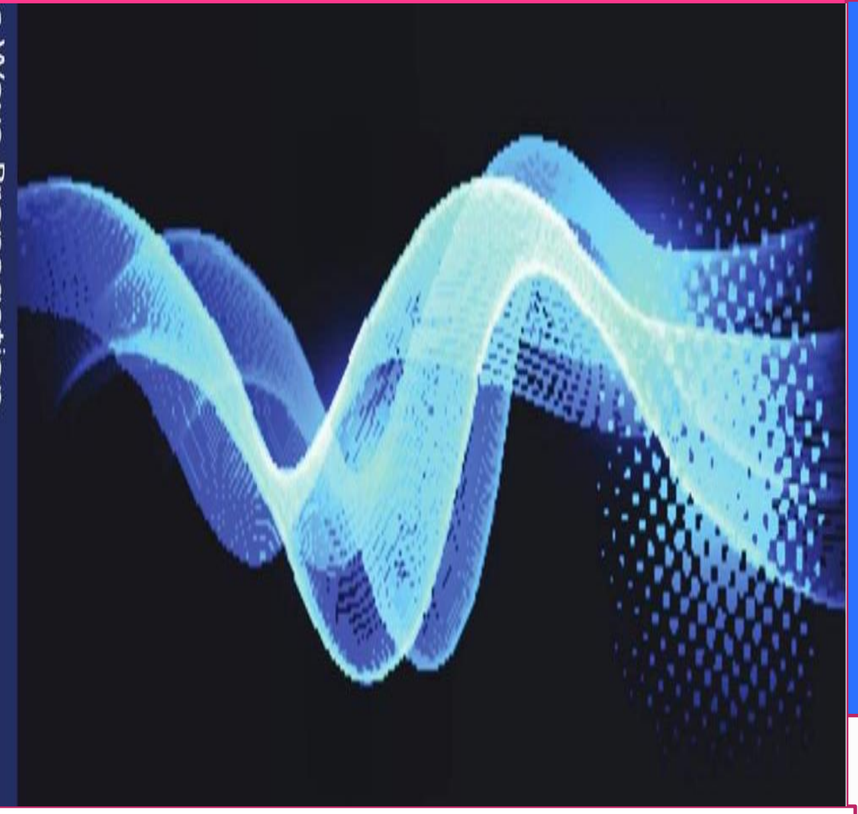
Total Publications : 51
Citations : 360
H-Index : 11

Awards/Recognitions

- Visiting Associate, IUCAA, Pune

Participation in Faculty Development Programme

- Faculty Development Programm, UGC-HRDC Osmania University (07.02.2022-7.03.2022)



Newsletter

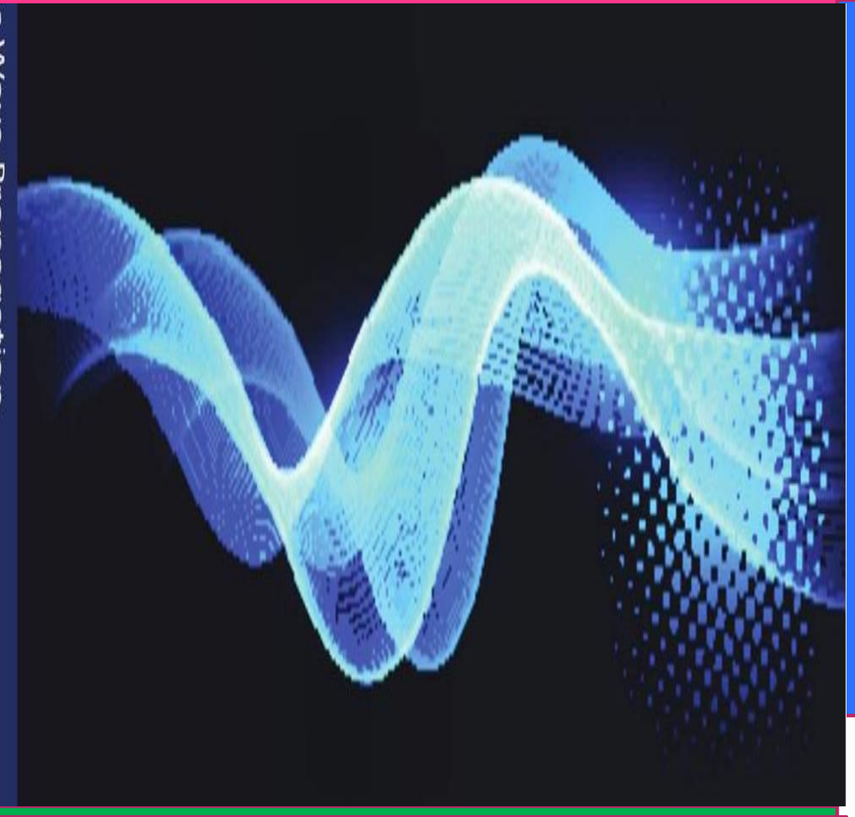
Propagation

July 2021 to June 2022

Post Doctoral Fellows / Post Doctoral Research Associates

Name : **Dr. R. Rajivgandhi R.**
Designation : Research Associate, SCANMAT.
Title : Developing Materials for High Efficiency Silicon-Hybrid Perovskite Tandem Solar Cells.

Name : **Dr. G. Kruthika.**
Designation : Dr. D.S. Kothari Post-Doctoral Fellow, SCANMAT Centre.
Title : Functional Materials for solar cell applications .



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July 2021 to June 2022

JRF / SRF / Research Assistants

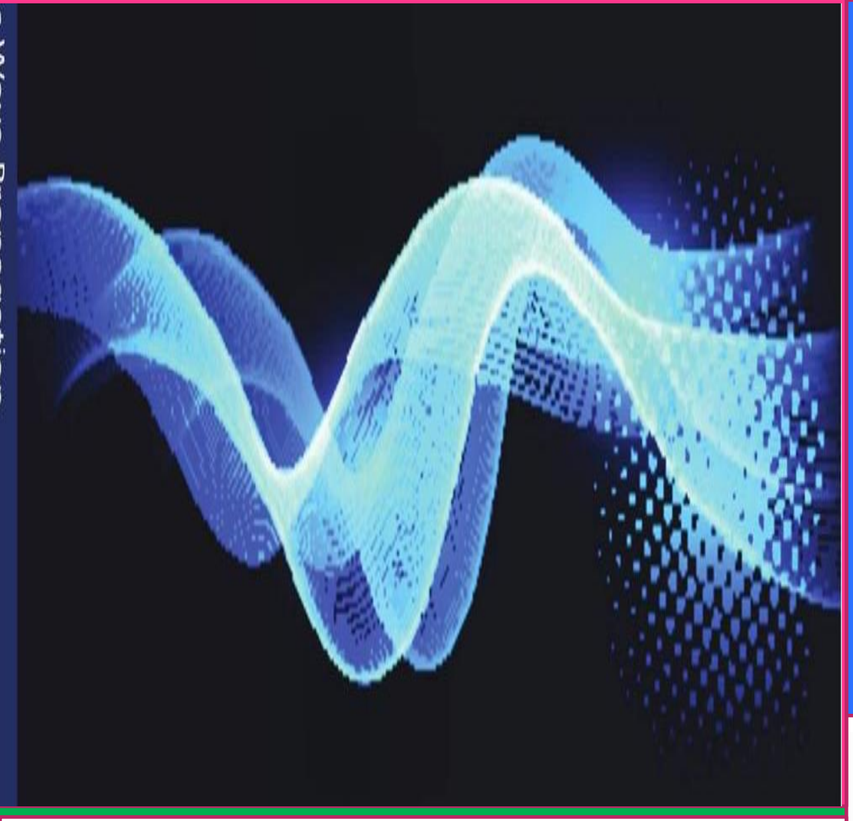
Name: Suresh
Title : Novel appraoches to magnetic structural phase transition in metallic system

Name: Pavithra T
Title : Nonlinear dynamics of Ferromagnetic nanomaterials

Name: Madhusree
Title : Energy storage capacitor

Name: Ashish Anil
Title : Quantum Teleportation

Name: Emanual daimari
Title : Soil Desiccation



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Ph.D Awarded/Thesis submitted

Ph.D. (Viva-Voce) Completed Students

Mr. N. Ayyappan (18.09.2021)

Title : Nonlinear Dynamics of Twisted DNA

Ms. Bhagya Mathi D, (11.02.2022)

Title : "Fabrication of multifunctional bilayer coatings on titanium: Halloysite nanotubes reinforced bioceramic composite coatings for orthopedic applications"

Mr. Hebrew Benhur Crispin, (25.02.2022)

Title : Vacuum-mediated coherence effects in laser-driven atoms

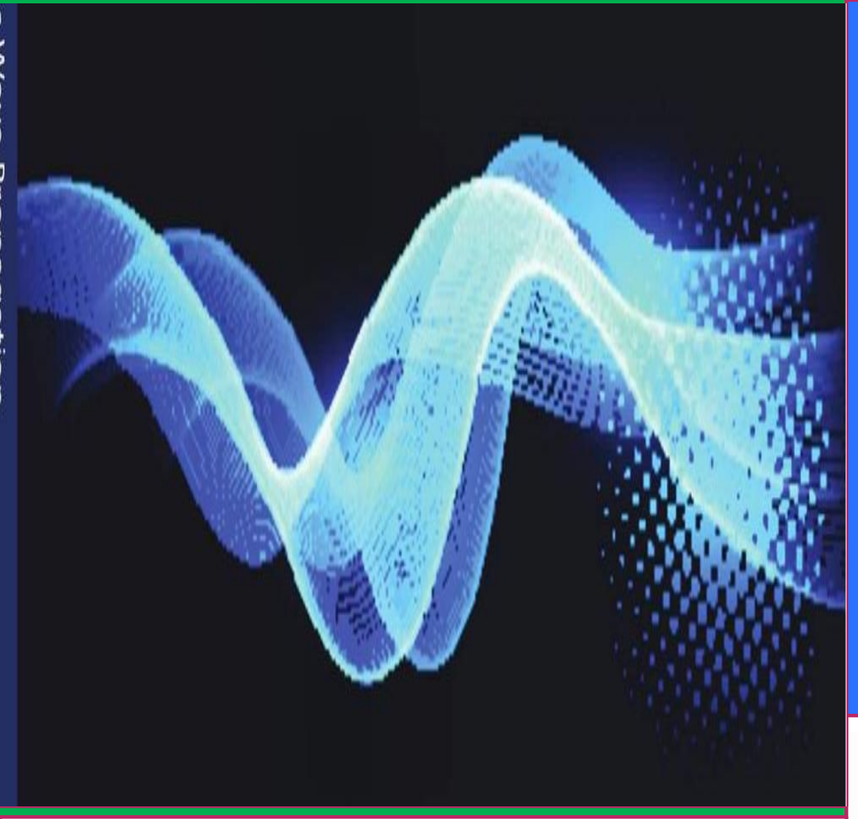
Ms. Aswini Harindran, (06.05.2022)

Title : Early Detection of Flocculation and Coagulation in Dairy Milk Colloids through Dielectric Spectroscopy and Droplet Drying Patterns.

Thesis submitted students

Ms. Ms.Vineetha.P

Title : Tailoring the Ferroelectric Properties of Lead free Potassium Sodium Noibate and Barium Calcium Zirconate Titanate based Ceramics



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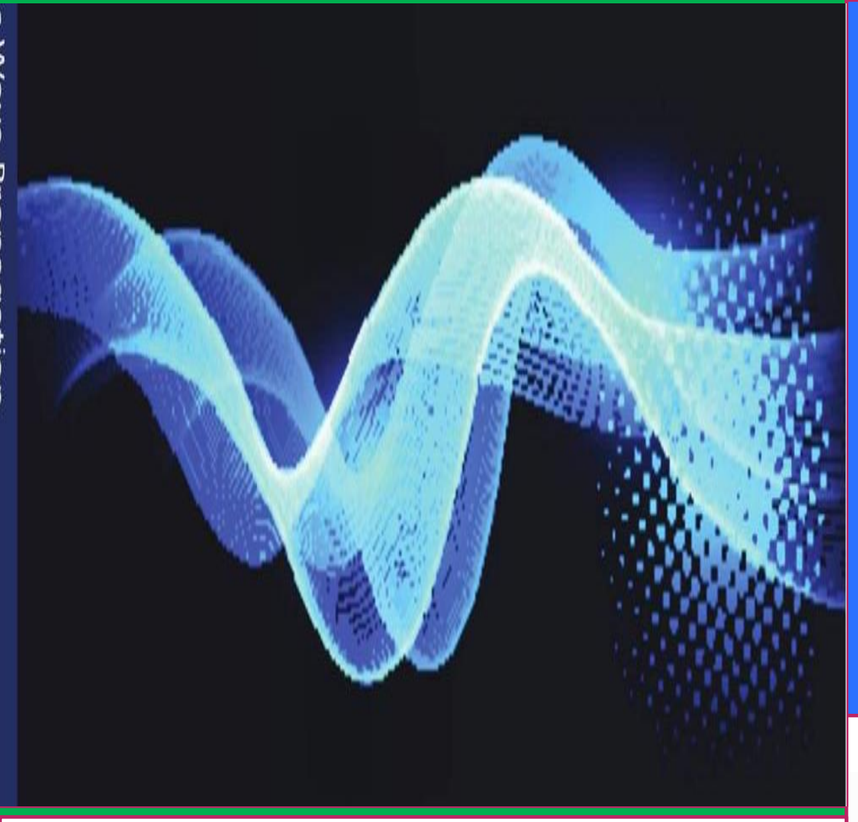
Seminars / Talks

Seminars/ Talks Organised by the Department

S.No	Name of the Speaker & Address	Title	Date
1	Dr. T R. Seshadri Delhi University	The first three minutes	July 30 , 2021
2	Prof. Ninan Sajeeth Philip, Dean and Director, AIRIS, Kerala.	A Practical Introduction to Astronomy &Astrophysics	17-Sep-21
3	Prof. Shantanu Rastogi Dean, Dayal Upadhaya Gorakhpur University	MEASURING THE UNIVERSE	10th Dec-2021
4	Dr. Aru Beri, Department of Physics, IISER, Mohali.	Exploring the stellar remnants Afterlives of stars	11th Feb-2022
5	Dr. Jasjeet Singh Bagla, Professor, Physical Science, IISER, Mohali	VINN - Gravitational Lensing	4-Jan-22
6	Dr. Suprit Singh Assistant Professor IIT Delhi	VINN - How to see and comprehend the night sky	June 11 , 2022
7	Ruchi Mishra PhD student at Nicolas Copernicus Astronomical Center, Warsaw, Poland , Alumna of CUTN	VINN - Journey to the center of our galaxy	June 17 , 2022



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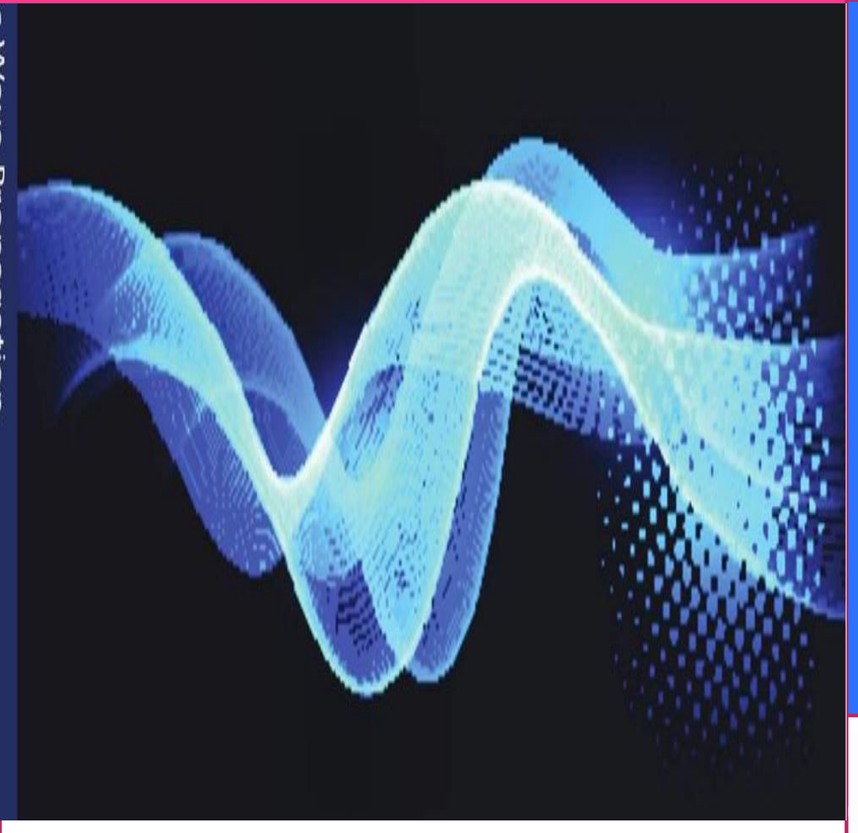
Students Achievements

S. No	Name of the Students	Exam cleared (2021-22)
1.	APARANA S SUDHIR	JAM - 2021
2.	Nebula S U	GATE - 2022
3.	Asmitha M R	GATE - 2022
4.	Amritha S	GATE - 2022
	Higher Studies Opted and Institution details	
1.	Sneha S	IIT Tirupati
	Ramyaa R R	lndian Institute of Remote Sensing 4, Kalidas Road, PB. No. 135, Dehradun - 248001,
	Preethi M	NIT, Trichy
	HARIKRISHNAN.P	Indian Institute of Space Science and Technology Thiruvananthapuram
	Hakim Jahan Sekhe	IISER Bhopal



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July 2021 to June 2022

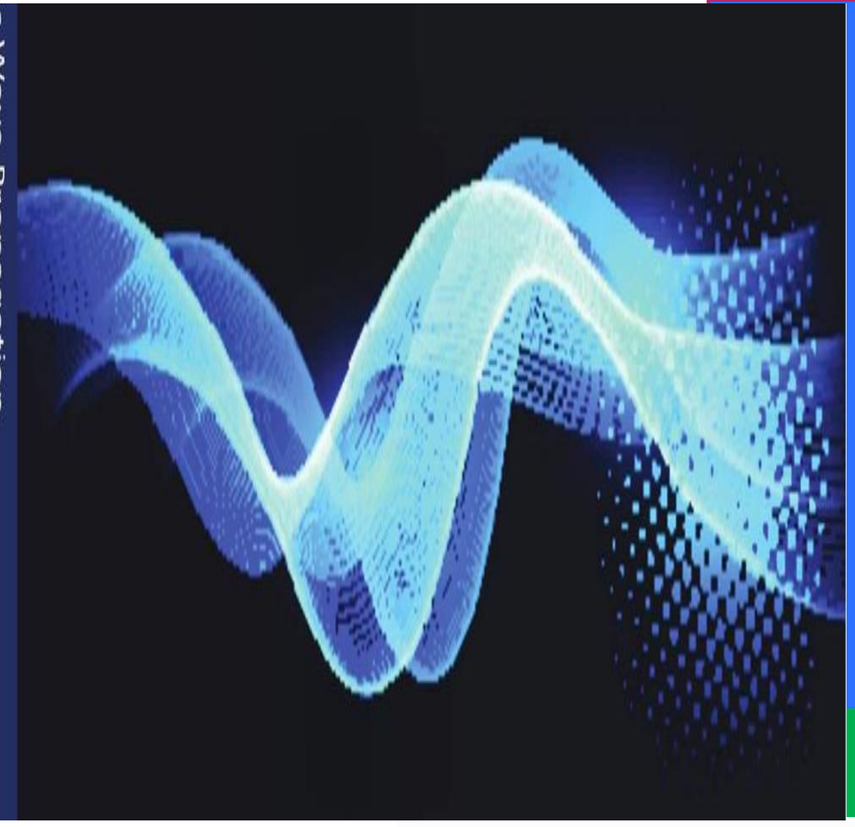
Events

The Perturbation club, Department of Physics, organized the fresher's day celebration on 7th April 2022 at 2.30 PM. The event is titled as "INΦKNIGHT". The venue of the event (Seminar Hall FF) was nicely decorated with red, black and white balloons as seen in the above picture. Nearly 100 fresher's from our department and other sister departments were participated. The event coordinator engaged the students with songs and fun games. The meeting was inaugurated by our department head Prof. L. Kavitha. All department faculty members joined the event in hybrid mode. Prof. Ravindhran motivated the first year students by introducing various activities in the department through virtual mode.

Fresher's day celebration (7th April 2022)

Music and Songs by final years and scholars

Group Songs by fresher's students



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FRESHER'S DAY CELEBRATION (7TH APR-2022)

Group dance

Surprise gifts presentation

Farewell (2K22) celebration

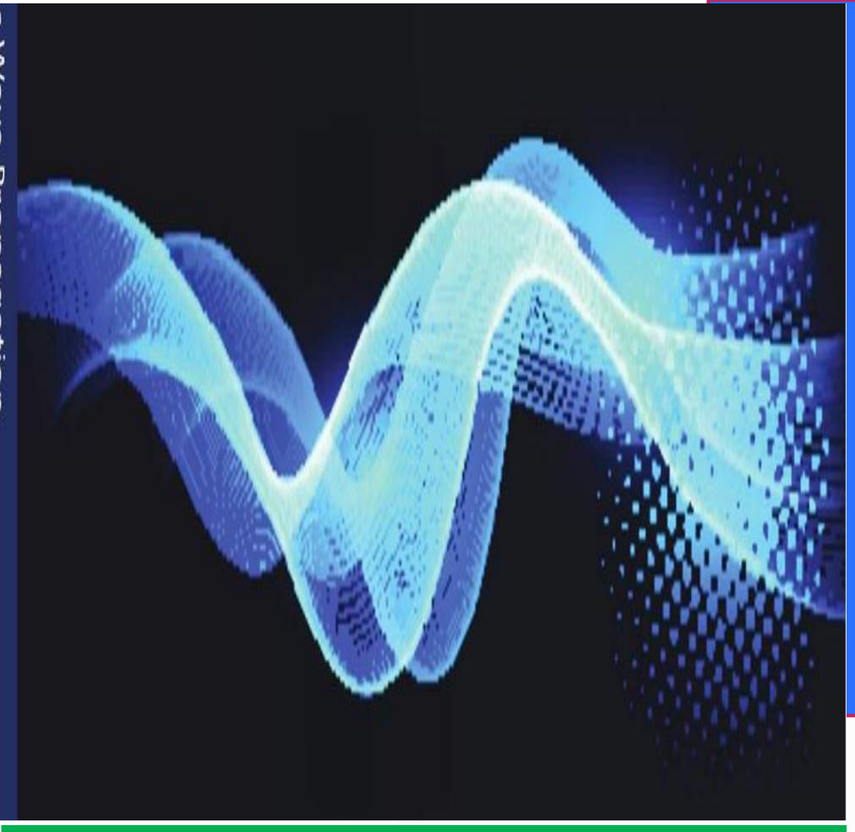
AUREVOIR

Venue:

outdoor

department

premise



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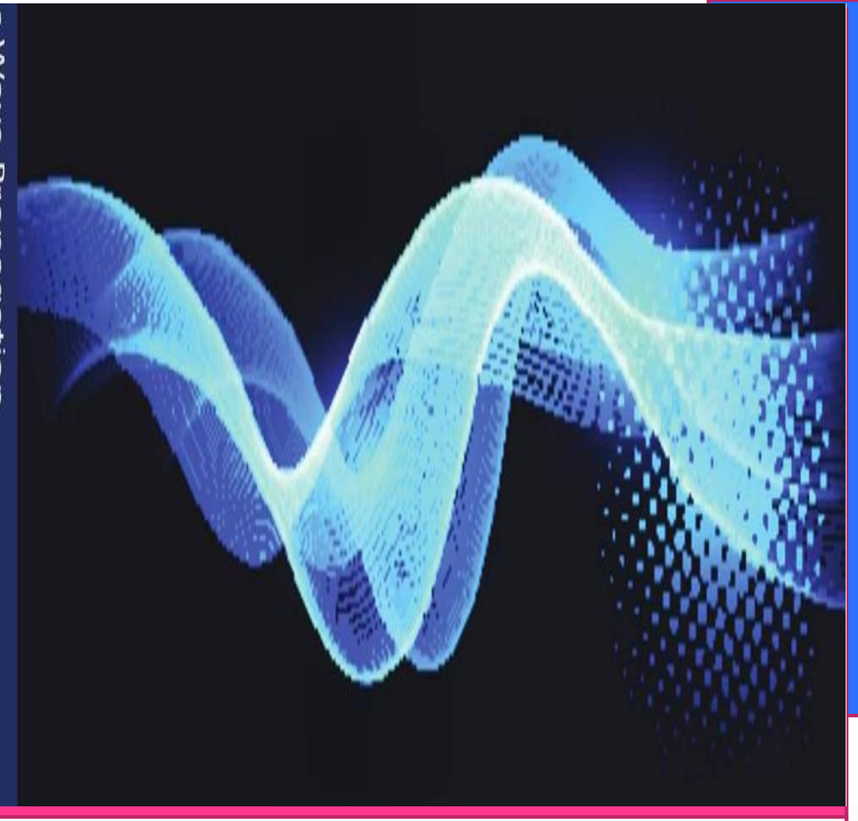
Farewell program (2021-2022)








The Perturbation club made all the arrangements for the farewell Program. The event titled as "AUREVOIR" and the event was overwhelmed with emotional events. The function had begun with the theme "Every Ending has a new beginning" and followed by fun games which were conducted by the juniors to the seniors such as quiz, pick the ball etc., Later the final year students were asked to give their opinions about the institution and the staffs. All the students were felicitated by the Prof. Ravindran, while addressing the student, he explained the dilemmas which would be a barrier to the legal profession how the students should prepare themselves for their future endeavors and wished them with his motivational speech. Further Dr. Nirbay, Dr. Venkata saravanan and Dr. Jacob addressed the students and wished them great success. The final year students shared their campus experience and the best memories they had in campus with their friends and faculty members. The program ends with a nice dinner.



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Event

Department of Physics
Schools of Basic and Applied Sciences
Central University of Tamil Nadu
Neelakudi, Thiruvarur - 610005

National Science Day-2022

Date and time: Monday, 28th February 2022, @ 3.30 pm
Venue: Seminar Hall, Department of Physics * &
Google Meet: https://meet.google.com/zjp-xhmz-twz

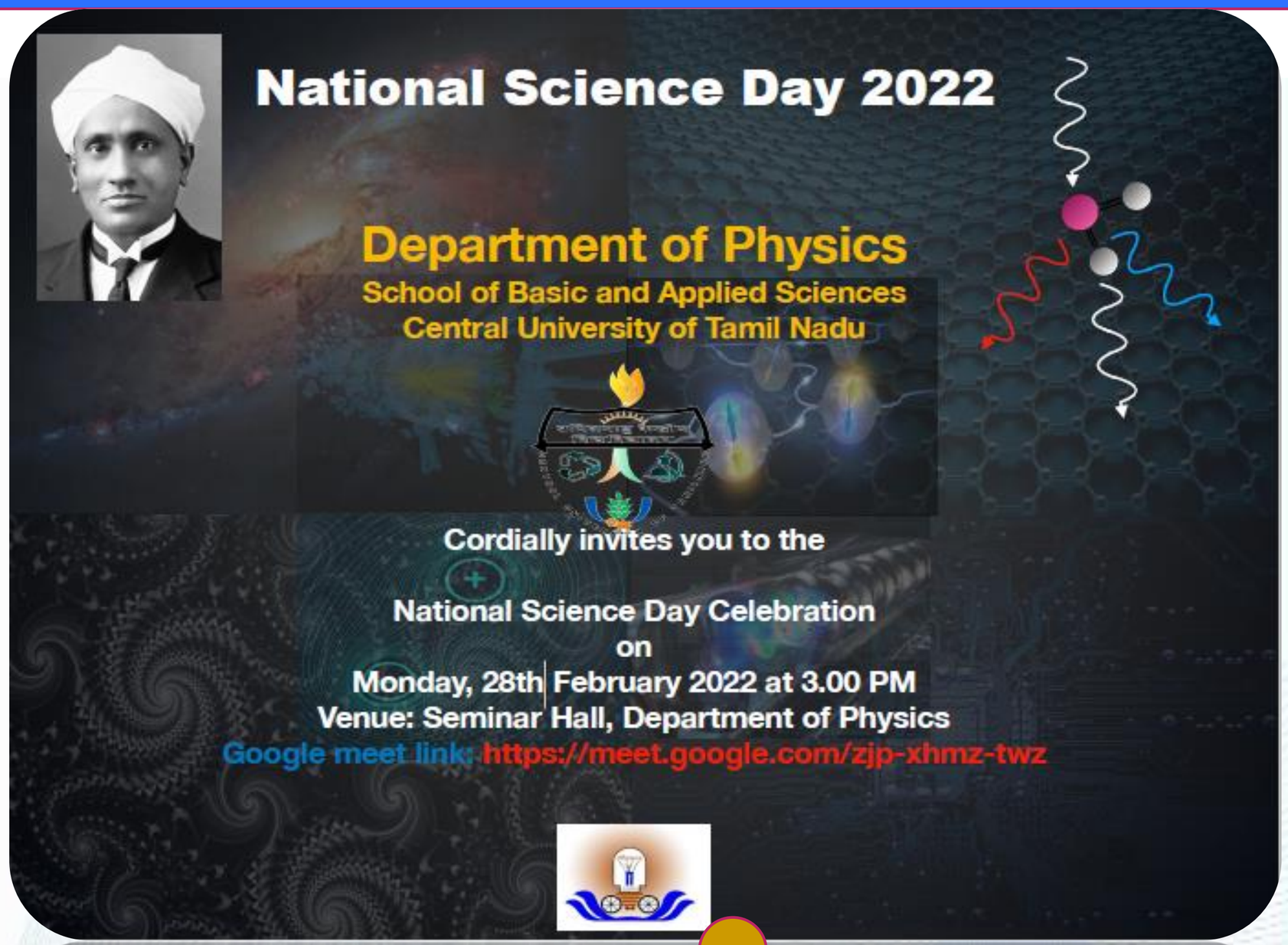
Sl. no.	Agenda	Time
1	**Welcome address** Prof. Dr. L. Kavitha Head, Department of Physics	3.30- 3.40 pm
2	**Presidential Address** Prof. Dr. M. Krishnan Honorable Vice-Chancellor	3.40 – 4.00 pm
3	**Felicitation** Prof. Dr. T Mohandas Dean, School of Basic and Applied Sciences	4.00 - 4.05 pm
4	**National Science day talk** Prof. Dr. K C James Raju Department of Physics University of Hydrabad	4.05 - 4.50 pm
5	**Talk by faculty member** Prof. Dr. V. Madhurima Department of Physics	4.50 - 5.20 pm
6	**Research Paper Presentation by Research Scholars**	5.20 - 6.20 pm
7	**Certificate distribution and vote of thanks:** Dr. Nirbhay Kumar Behera Assistant Professor of Physics	6.20 - 6.30 pm

All are invited.

Dr. Nirbhay Kumar Behera
Program Co-ordinator

Prof. L. Kavitha
Head of the Department

*Students and Research scholars staying in the campus may attend the event offline following the COVID-19 protocols/safety guidelines.

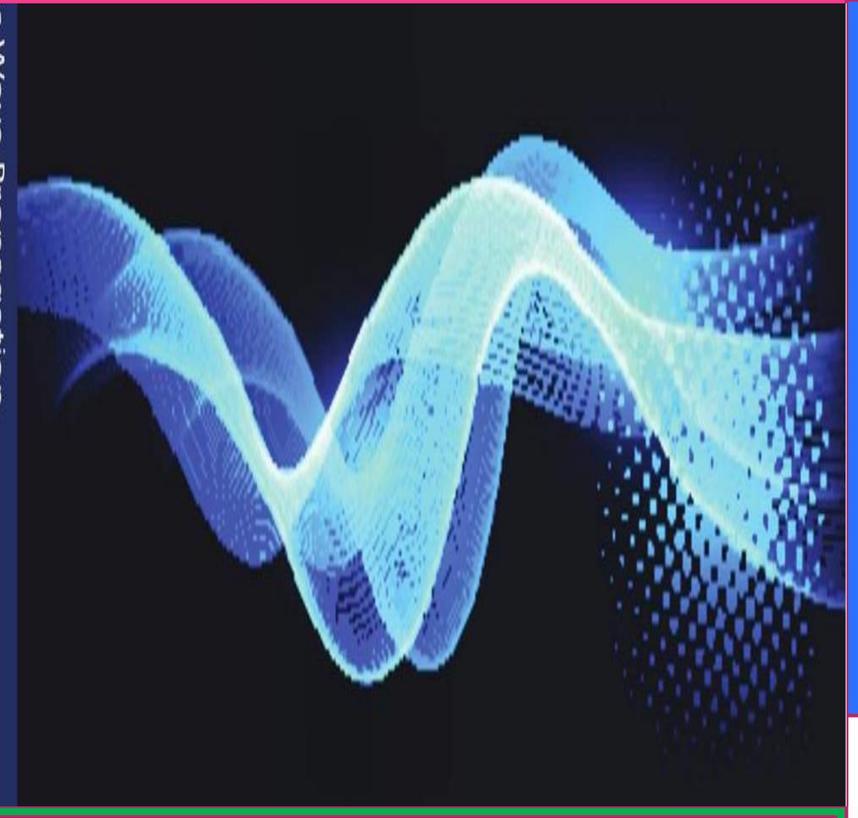


Research Paper Presentation Competition

1st Prize – Sreedevi P.D
2nd Price – A Arul Anne Elden
3rd Price – AbdulKareem U

Drawing Paper Presentation

1st Prize – M. Ragavignaya
2nd Price – Abhyoudai S.S & S. Semmozhi
3rd Price - Pooja A



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Major Instrumentation Facilities

Vector Network Analyzer (Rhode&Schwarz ZVA-40)

Contact Angle Gonio Meter (Rame Hart – 450)

Centrifuge Eppendoff -5430R

High Temperature Furnace

FT-IR with ATR Attachment (Perkin Elmer – Spectrum 2)

UV-Visible Spectrophotometer

Keithely Dual Channel System

Particle Size & Zeta Potential Determination

Potentiostat and Galvanostat

Confocal Laser Scanning Microscope (Lesia TCS SP8)

Empyrean X-Ray Diffractometer

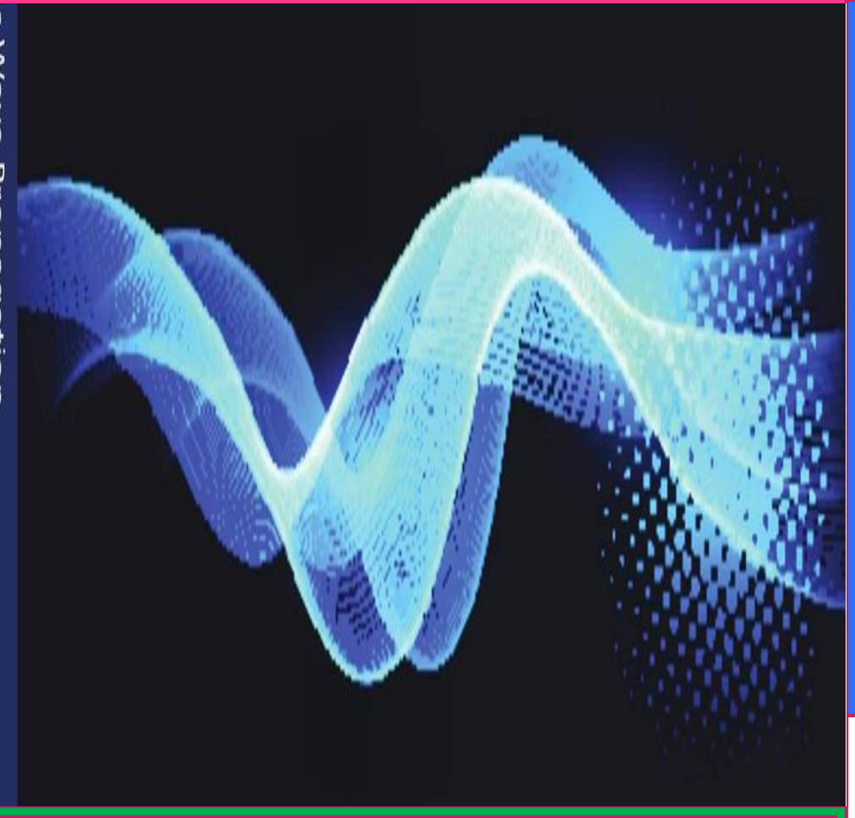
Seeback Coefficient SBA458

DSC 404 F3 (Differential Scanning Calorimeter

Lathe Machine, Driller, Grinding Machine etc.

Planetary Ball Miller (Pulverizer)

LFA 457 (Laser Flash Apparatus) Microflash



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Gallery