

Department Profile

The Post Graduate Department of Physics was started in the year 2004 with the student strength of sixteen. The department was upgraded to a full-fledged research department with the introduction of the M.Phil. program in the year 2009 and the Ph.D. program in the year 2018.

With a focus on encouraging research, the department has established well equipped labs with sophisticated instruments and scientific software for experimental and theoretical research activities in multiple areas of Physics.

Postgraduate students are motivated to take up internship programs in reputed institutes such as the IITs, IGCAR, IISc, etc. They are also encouraged to participate and present their project work in various scientific forums such as conferences and seminars to inculcate a thirst for research.

Department mail id physics1332@ethirajcollege.edu.in

1. Faculty profile:



Name : Mrs. S. Abhirami
Qualification : M.Sc., M.Phil.
Designation : Assistant Professor
Years of Experience: UG: 16 PG: 16
Previous Experience: UG: 3 PG: 3
Area of Specialization: Materials Science
Email-ID : abhirami_s@ethirajcollege.edu.in

Name : Dr. J. Bhavani
Qualification : M.Sc., Ph.D.
Designation : Assistant Professor
Years of Experience: UG: 16 PG: 16
Previous Experience: UG: 0 PG: 0
Area of Specilization: Solid State Physics
Email-ID : bhavani_j@ethirajcollege.edu.in



Name : Dr. Rajeswari Gangadharan
Qualification : M.Sc., Ph.D.
Designation : Assistant Professor
Years of Experience: UG: 13 PG: 13
Previous Experience: UG: 6 PG: 6
Area of Specilization: Crystallography & Bio Physics
Email-ID : rajeswari_g@ethirajcollege.edu.in



Name : Dr. S. Leela



Qualification : M.Sc., Ph.D.
Designation : Assistant Professor
Years of Experience: UG: 10 PG: 10
Previous Experience: UG: Nil PG: Nil
Area of Specilization: Materials science
Email-ID : leela_s@ethirajcollege.edu.in

Name : Mrs. N. Aparana Devi



Qualification : M.Sc., M.Phil and SET
Designation : Assistant Professor
Years of Experience: UG: 6 PG: 6
Previous Experience: UG: Nil PG: Nil
Area of Specilization: Material science
Email-ID : leela_s@ethirajcollege.edu.in

MEMBERSHIP

| S.No. | Details | State/National/International |
|-------|---|------------------------------|
| 1 | Mrs. S. Abhirami - Life member - Indian Association of Physics Teachers | National |

PROJECTS

| S.no. | Title | Duration | Funding agency | Amount sanctioned (in lakhs) |
|-------|---|--------------------------------|-----------------------|-------------------------------|
| 1. | Synthesis of Silver Nanoparticles in the Vegetables and fruits (BITTER CUCUMBER) | 3 months April-June 2015 | Ethiraj College Trust | 5000/- |
| 2. | Green Synthesis of Silver Nanoparticles Using White Sugar | 3 months April-June 2015 | Ethiraj College Trust | 5000/- |
| 3. | Synthesis of FeMnO ₄ Ti Perovskite and its Structural Properties | 3 months April-June 2019 | ECRIC | 12,000/- |
| 4. | Phase stabilization and effect of trivalent lanthanide substitution on Dy ₂ FeMnO ₆ double perovskite compounds | July 2019 – June 2020 One Year | ECRIC | 15,000/- |
| 5. | Design and Fabrication of Natural Bioactive Metal Enhanced Polymer Composite Scaffolds for Bone Tissue Engineering | 2020-23 | ECRIC | 301000/- |

RESEARCH GUIDANCE

| | |
|----------------|---|
| Ph.D Awarded | - |
| Ph.D Guiding | 1 |
| M.Phil Awarded | 7 |
| M.Phil Guiding | 1 |

WORKSHOPS

| S.no. | Organized by | State/National/International | Topic | Date(s) |
|--------------------|---|------------------------------|---|-------------------------------|
| S. Abhirami | | | | |
| 1 | Crystal Growth Centre, Anna University in association with Centre for International Affairs, Anna University, Chennai – 25. | International | Advanced Materials and Device Technology | November 22 - 24, 2017 |
| 2 | Interdisciplinary Centre For Nanotechnology Department of Electrical and Electronics Engineering, Sri Venkateswara College of Engineering, Pennalur, Sriperumbudur. | National | Semiconductor Nano Devices – Modeling and Fabrication | February 16 - 18 , 2018 |
| 3 | The Internal Quality Assurance Cell, Ethiraj College for Women, Chennai | State | NAAC Regulations: A Holistic Approach | 12 th October 2019 |
| 4 | Department of Chemistry, Ethiraj College for Women(Autonomous), Chennai – 08. | State | Organic Synthesis | 27 th January 2020 |
| 5 | School Of Physics, Dr. Vishwanath Karad MIT World Peace University, Pune, India. | National | Development of Nuclear Batteries using Radioactive source | 22nd June 2021 |
| 6 | Dept. of Physics & Chemistry under IQAC, SVCR Govt. Degree College, Palamaner, A.P, India. | National | Recent Advances in Materials Science Technology | 12th July 2021 |

CONFERENCES ATTENDED / PRESENTED PAPER

| S.no. | Organized by | State/National/International | Participated/Presented | Title | Date(s) |
|-------|--------------|------------------------------|------------------------|-------|---------|
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| S. Abhirami | | | | | |
|--------------------|---|---------------|--------------|--|---|
| 1 | Department of Physics, B. S. Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai | National | Participated | Recent Trends In Functional Materials | November 15-16, 2017 |
| | Department of Advanced Zoology & Biotechnology, Chemistry, Physics and PG & Research Department of Plant Biology and Plant Biotechnology, Quaid-e-millath Government College for women, Chennai – 02. | International | Participated | Impact of Nanotechnology On Health and Environment | 26 th & 27 th February 2018 |
| 2 | Department of Physics, B. S. Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai | National | Participated | New-Generation Materials for Energy Applications | 21 st & 22 nd October 2019 |
| 3 | National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai | International | Presented | Advanced Nanomaterials – ISAN 18 Synthesis and Characterization of Zn Doped SnO ₂ Thin Films | 27 th & 28 th February 2018 |
| 4 | SRM Institute of Science and Technology | National | Presented | Effect of Strontium on Morphological, Structural and Optical Properties of SnO ₂ nanoparticles for Energy and Electronic Applications | 2019 |
| 5 | Saveetha School of Engineering | National | Presented | Synthesis of Dy ₂ TiFeO ₆ double perovskite compound and its properties | 2020 |
| 6 | Alpha arts and science College | International | Presented | Effect of trivalent lanthanide substitution on Nd ₂ FeMnO ₆ double perovskite compounds. | 2020 |
| 7 | KSR Institute of Engineering and technology | International | Presented | Synthesis and Characterization of La ³⁺ substituted Yb ₂ FeMnO ₆ compounds. | 2021 |
| 8 | PPG college of Arts and Science | International | Presented | Synthesis and Characterization of La ³⁺ ion-substituted Ho ₂ FeMnO ₆ double | 2021 |

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| | | | | perovskite compounds. | |
| 9 | SSN Institutions | International | Presented | Phase stabilization and effect of trivalent lanthanide substitution on NdFeMnO ₆ double perovskite compounds. | 2021 |
| J. Bhavani | | | | | |
| 1 | SSN College | International | Presented | Structural and Electronic Properties of Cu ₂ -II-IV-VI ₄ Quaternary Semiconductors Using PBE-GGA and TB-mBJ Potentials | 2019 |
| 2 | Alpha Arts and Science College | International | Presented | First Principles of Structural, Electronic and Optical properties of full Heusler Compound Ni ₂ MnZ (Z=Al, In, Ga) | 2021 |
| 3 | SSN College for Engineering | International | Presented * | a,b – Initio Study of Structural, Electronic and Optical properties of full Heusler Compound Co ₂ MnZ (Z=Si, Ge) using Wien2k Code | 2021 |
| 4 | SSN Institutions | International | Presented | a,b – Initio Study of Structural, Electronic and Optical properties of half Heusler Compound XMnSb (X=Co, Rh) using Wien2k Code | 2021 |
| 5. | Alpha Arts and Science College | International | Presented | Ab-initio study of structural and electronic properties of KCaX (X=P,As) using wien2K code | 2021 |
| 6. | Alpha Arts and Science College | International | Presented | Ab-initio study of structural and electronic properties of ScNiX (X=Ga,In) using wien2K code | 2021 |
| | | | | Ab-initio study of structural and electronic | |

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|----|---|---------------|-----------|---|--|
| 7. | KSR Institute of Engineering and Technology | International | Presented | properties of ZnS and CaGaS ₂ of group (II – VI) (I – III- VI) and Gap and CdSnAs ₂ of group (III – V), (II-IV-V) using GGA and mBj approximation with wien 2k code | |
| 8. | SSN College of Engineering | International | Presented | | |

Dr. G. Rajeswari

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|----|-----|---------------|-----------|---|------|
| 1 | SRM | International | Presented | Surface modification using PEG and SiO ₂ coatings for effective stabilization of super paramagnetic iron oxide nano particles. | 2021 |
| 2. | SRM | International | Presented | A physio – Chemical study on the impact of varying molecular weights of polymer on hydroxyapatite (Hap/PEG/Cu) Nanocomposite. | 2021 |

Dr. S. Leela

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|---|-----------------------|---------------|-----------|---|------|
| 1 | Pachaiyappa's college | National | Presented | Trends in Physics of Materials NCRTPM | 2018 |
| 2 | Periyar University | International | Presented | Synthesis, Growth and Characterization of | 2018 |

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|----------------------|--|---------------|-----------|---|------|
| | | | | Schiff base derivative - 5-Bromo-4-methoxy Salicylidene aniline (BSMA) Nonlinear optical single crystal | |
| 3 | SRM University | National | Presented | Investigation of Structural and optical properties of Al doped ZnO (AZO) thin films | 2019 |
| 4 | CMC, Chemical Society | International | Presented | Synthesis and characterization of Schiff based derivatives – Salicylidene aniline. | 2020 |
| 5 | Manipal University | International | Presented | Influence of He Halogen substituted in the Salicylidene aniline derivative materials. | 2021 |
| 6. | Dr. Ambedkar Governmen College, Chennai | International | Presented | Synthesis and Growth characterization of Schiff based Metal complexes. | 2020 |
| 7. | SRM Institute of Science and Technology | International | Presented | A study on GO and rGO based thin films as photo electrodes for energy applications. | 2021 |
| 8. | SSN College of Engineering | International | Presented | Synthesis of Graphene oxide by modified Hummer's method and its green reduction via Vitamin C | 2021 |
| N. Aparnadevi | | | | | |
| 1 | KIIT University, Bhubaneswar | National | Presented | Bi Augmented Magnetization in Gadolinium Iron Garnet | 2016 |

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|---|---|---------------|-----------|--|------|
| 2 | SRM University | National | Presented | *Microwave Assisted Synthesis and Study of Multiferroic GdMnO ₃ * | 2016 |
| 3 | Defense Metallurgical Research Laboratory | International | Presented | Lowered Temperature Synthesis of Bi ₂ Fe ₄ O ₉ Instigated by High Energy Ball Milling | 2017 |
| 4 | SRM, Chennai | International | Presented | Fabrication of Copper enriched hydroxyapatite polyethylene glycol (PEG) nano bio composites for bone tissue grafting. | 2021 |

**Best paper award kindly do put asterisk*

API format to be followed

SEMINARS

| S.no. | Organized by | State/national/international | Topic | Date(s) |
|-------|-----------------------|------------------------------|--|----------------------------|
| 1 | Department of Physics | National | Raman Lecture series on “ Advance materials science” | 3 rd March 2021 |
| 2. | Department of Physics | National | Raman Lecture series on “ Advance materials science” | 5 th March 2021 |

CERTIFICATE COURSES /VALUE ADDED COURSES

| S.no. | Offered by | Topic | Duration |
|-------|--|----------------------|------------------------------------|
| 1 | Swayam | Yyy | No.of weeks/months[date specified] |
| 2 | Physics(SS), Ethiraj College for Women | MATLAB for Beginners | 30 Hrs.(Every year) |

JOURNAL PUBLICATIONS

| S.NO. | JOURNAL NAME | UGC /SCI/SCIE/ WOS | ISBN / ISSN NUMBER | REFERENCE | DATE OF PUBLICATION/D OI |
|-------------|--------------------|--------------------|--------------------|-----------|--------------------------|
| S. Abhirami | | | | | |
| 1 | Vacuum | SCI | ISSN 0042-207X | | 2020 |
| 2 | J Mater Sci: Mater | SCI | ISSN 0957-4522 | | 2021 |

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|--------------------------|--|-----|------------------------|--|---------------------------|
| | Electronics | | | | |
| 3 | Solid State Technology | SCI | ISSN 0038111X | | 2021 |
| 4 | International Journal of Science Technology and Management | UGC | ISSN 2394-1537 | | 2021 |
| J. Bhavani | | | | | |
| 1 | International Journal of Scientific Research in Physics and Applied Sciences | | ISSN 2348 – 3423 | | 2019 |
| 2 | International Journal of Materials, Mechanics and Manufacturing | WOS | ISSN: 1793 - 8198 | | 2019 |
| 3 | Wesleyan Journal of research | UGC | ISSN: 0975-1386 | | |
| 4. | Journal of Physics, Mathematics and statistics | | ISSN 2393-8064 | | 2021, October 8 , 153-165 |
| Dr.Rajeswari Gangadharan | | | | | |
| 1 | Acta Crystallographica | SCI | | | 2016 |
| 2 | Acta Crystallographica | SCI | | | 2016 |
| Dr. S. Leela | | | | | |
| 1 | International Journal of Nanoscience | WOS | | | 2016 |
| 2 | Arabian Journal of Chemistry | SCI | ISSN: 1878-5352 | | 2017 |
| 3 | Superlattices and Microstructure | SCI | ISSN: 0749-6036 | | 2018 |
| 4 | AIP Conference Proceedings | UGC | ISBN 978-0-7353-1857-8 | | 2019 |
| 5 | AIP Conference Proceedings | UGC | ISBN 978-0-7353-1857-8 | | 2019 |
| 6 | Acta | SCI | ISSN: 2056-9890 | | 2020 |

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|---------------|--|-----|-----------------|--|------|
| | Crystallographica | | | | |
| 7 | Materials Today: Proceedings | UGC | ISSN: 2214-7853 | | 2021 |
| N. Aparnadevi | | | | | |
| 1 | Journal of Applied Physics | SCI | | | 2016 |
| 2 | AIP Conference Proceedings | UGC | | | 2017 |
| 3 | AIP Conference Proceedings | UGC | | | 2017 |
| 4 | AIP Conference Proceedings | UGC | | | 2018 |
| 5 | Journal of Materials Science, Materials in Electronics | SCI | | | 2019 |
| 6 | Journal of Materials Science: Materials in Electronics | SCI | | | 2020 |
| 7 | Physica status solidi (a) | SCI | | | 2020 |

FDP/STTP

| S.no. | Organized by | State/National/International | Topic | Date(s) |
|--------------------|---|------------------------------|--|---------------------------------|
| S. Abhirami | | | | |
| 1 | Department of Physics, Dwaraka Doss Goverdhan Doss Vaishnav College(Autonomous), Chennai, in association with Indian Association of Physics Teachers. | National | Computer Simulations to Enhance Physics Learning | 30 th November 2018 |
| 2 | Ethiraj Centre for Research, Innovation and Creativity(ECRIC), Ethiraj College for Women, Chennai . | National | Research Innovation and Creativity | 14 th September 2019 |

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|-------------------------|---|------------------|--|--------------------------|
| 3 | Internal Quality Assurance Cell, Ethiraj College for Women, Chennai - 08. | National | Recasting from Onsite to Online Pedagogy | 20-24 July 2020 |
| 4 | PPG College of Arts & Science | National | Recent Trends in Solar Cells | 13th - 20th July 2021 |
| Dr. G. Rajeswari | | | | |
| 1 | Ramanujan College, University of Delhi. | National by MHRD | Comprehensive e – Learning to e –training guided for Administrative Work | May 25- June 05, 2020 |
| 2. | CTTE College for Women | National | Innovation and Intellectual property Rights | 04-10-2021 to 10-10-2021 |

WEBINARS [National/International]

| S.no. | Organized by | State/National/International | Topic | Date(s) |
|--------------------|---|------------------------------|---|----------------------------|
| S. Abhirami | | | | |
| 1 | Department of Bank Management, Ethiraj College for Women, Chennai – 08. | International | Leaveraging Technology to Make Data Driven Decisions | 1 st July 2020 |
| 2 | Department of Physics, B. S. Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai – 48 | National | Sensor materials and Applications | 26 th July 2020 |
| 3 | Department of Physics, B. S. Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai – 48. | National | The Potential in Thermoelectric Technology: Electrical Power Generation from Waste Heat | 27 th July 2020 |
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AWARDS:

Dr. S. Leela

Venus International foundation centre for Advanced Research and Design has awarded **Dr S. Leela, Outstanding women in Physics** for the contribution and achievement in the field of Physics.

OTHERS:

Dr. Rajeswari Gangadharan

Resource person – Two days National level Webinar on “From Structure to Function Via Algorithms and Simulations” at Kongu Engineering College, Erode.

Member of scrutinizing committee - Academic audit of Department of Biophysics, University of Madras.

Dr. J. Bhavani

Member of BOS (2020-2021) – Department of Physics (SS), JBAS, Chennai