

Faculty Profile



Dr. S.Kalpana, M.Sc, M.Phil,Ph.D

Professor of Physics

HIGHLIGHTS:

- Number of Journal Publications: 49
- H-Index:10
- Project Funding Received: Arivial Sangam Elocution Compettion conducted-9000/-
- Project Funding Received:DST-SERB International Conference sponsored Sanctioned-100000/- 2024
- Project Funding Received:ISTE- sponsored Sanctioned-10000/- ICANS-24
- Project Funding Received:DAE-BRNS National Seminar Sponsered sanctioned-40000/- 2024
- Patents Published:38
- Patents Granted:02

PROFESSIONAL LINKS:

- Scopus ID: Kalpana.S
- Scopus Link:
<https://www.scopus.com/authid/detail.uri?authorId=57195926419&origin=resultslist>
- Google Scholar
ID: <https://scholar.google.com/citations?hl=en&user=4YKNXkQAAAAJ>
- Anna UniversityFaculty ID: 282056
- AICTE Faculty ID: 1-85472689
- Anna University Supervisor ID: Applied
- LinkedIn: <https://www.linkedin.com/in/dr-s-kalpana-rajana-b79918194/>
- Yukthi Id : <https://yukti.mic.gov.in/team-lead/innovation-repository>
- Orchid Id:<http://orcid.org/0000-00024869-7877>
- Research Gate: AAD-4533-2020
- Vidwan-ID -542512
- Scopus Id: 51966253828

PROFESSIONAL BACKGROUND:

- Teaching Experience till date: 24 Years
- Industrial Experience: Nil

ACADEMIC EXPERIENCE:

- Aug – 2022 to till date, Professor, Department of Physics Saveetha Engineering College, Chennai, Tamil Nadu, India.
 - Aug 2019 to Aug 2022 worked as an Associate Professor, AMET UNIVERSITY, Chennai, Tamil Nadu
 - Aug 2012 to May 2019, worked as an Assistant Professor (SG), SreeVenkateshwara College of Engineering, Chennai, Tamil Nadu
Aug 2006 to July 2012, Assistant Professor (SG) Department of Physics Saveetha Engineering College, Chennai, Tamil Nadu, India.
 - Dec 2002– Aug2006, worked as an Assistant Professor,(OG) SreeSastha Institute of Engineering and Technology.
 - March 2001 to August 2002, Lecturer, Quaid-E-Millath Government Arts & Science College, Chennai, Tamil Nadu, India.
 - Jan2000-Dec 2000, Lecturer, Sree Subramanya Swami arts & science college, Thiruttani
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INTERNATIONAL EXPOSURE:

Presented a Research Paper titled “Fabrication, Optical and Mechanical Properties of Gd-Doped Zinc Boro-Phosphate Glass for Warm White LED and Radiation Shielding Applications” at ICATEM’24 International Conference held on 21st March 2024 at DE MONTFORT University., Dubai.

AREA OF SPECIALIZATION:

- Dye sensitized solar cells (quantum dot and natural dye).
- Photocatalytic Applications.
- Synthesis of nano-materials, Metallic Glasses (metal and metal oxides) & Hydrogen Production

Ph.Ds AWARDED WITH DETAILS:

Thesis entitled: “**Certain Investigations on Bare and Doped ZnO Nanocrystals for Photocatalytic Degradation of Methylene Blue**”

Ph.Ds GUIDING:

Full Time Scholars: NIL

Part Time Scholars :

SPONSORED RESEARCH / FUNDING APPLIED / CONSULTANCY:

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- SEED MONEY 2 PROJECTS COMPLETED 2020 AMET UNIVERSITY
 - CSIR-SRTP –2020-Summer Project completed
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- DAE-BRNS Sponsored "Two-day National Seminar on " Nuclear Security Challenges and recent advances in radiation detection technology" -NSCRDT' 25" on January 6th & 7th 2025.
- DST-SERB Sponsored "International Conference on Advances in Nanomaterial-Based Sensors: Impacting Environmental Pollution Detection through Artificial Intelligence - ICANS' 24" on December 19th and 20th, 2024.

PATENTS PUBLISHED/GRANTED:

Patents Granted(Design):

- MASK WITH SPUTTER SAMPLE COLLECTOR , Application Number 378214-001 on March 2nd 2023.
 - IOT BASED NOISE POLLUTION DETECTOR Application Number- 405659-001 on March 15th 2024.
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Patents Published:

- HPLC-based research for level of sodium nitrate ingredient in food products. Application number 202341031758A, published on June 16th June 2023.
- Multi Purpose Aluminum & Barium Borophosphate Radiation Shielding Application. 202341039444A published on June 18th August 2023.
- Method to Analysis Biosensor Fabrication to Detect Chemical Warfare, Application number 202341059031A, published on October 6th 2023.
- Analysis and method for performing of Zinc Oxide Nano particles using Lentinula Edodes Mushroom and Chitosan. Application number 202341059031A, published on October 6th 2023.
- Nanotechnology based sensors for monitoring soil quality and maintaining health of agricultural plants. Application number 202341058903A, published on October 6th 2023.
- Analysis of herbal composition for inflammatory disorders, Application number 202341058902A published on October 6th 2023.
- A Nano Technology based technique to analysis growing Metallic Nano Clusters and Compositions, Application number 202341068047A, on October 20th 2023.
- Nano Fabrication and Nano Particles Analysis to Solar Cells for Maximum Absorption of the Solar Energy. Application number 202341074404A, on December 15th 2023.
- Sustained Release, Polymeric Nanoparticles Oral Formulation for Management of Osteoporosis, Application number 202341069384A, on November 24th 2023.
- Analysis of Bagasse Fibre Based Gel as Quasi Electrolyte for Aluminum-Air Battery. Application number 202341069385A, on November 24th 2023.
- Preparation and Characterization of Solid Nano Particles for the Effective Treatment of Breast Cancer. Application number 202341069382A, on November 24th 2023.
- Methods and Analysis for Bio-Synthesizing Zinc Oxide Nanoparticles using Cow Urine. Application number 202341069383A, on November 24th 2023.
- Tridax Daisy Nanoparticle-derived anti-bacterial gel composition, Application number 202341061515A on 19th January 2024.
- Graviola (Annona muricata) nanoparticle derived anti-inflammatory gel Application number 202341061526A 26th January 2024.
- Advanced low cost electric vehicle modelling system with lithium ion battery, Application number 202441010883A on 23rd February 2024.
- A performance evaluation system and method for amorphous silicon photovoltaic module analysis, Application number 202441013984A on March 22nd 2024.
- Artificial intelligence with machine learning based online examination monitoring system, Application number 202441014946A on 15th March 2024.

- Wearable sensor system for enhanced telemedicine management, Application number 202441014362 A on march 8th 2024.
- Analysis of the green synthesis interventions of pharmaceutical Industries for sustainable development , Application number 202441014361A on march 8th 2024.
- Wind energy takes flight: futuristic blade designs for a sustainable future, Application number 202441055638 A on July 27th 2024..
- Power up on savings: energy conservation strategies for technical institutions application number 202441055640 A on July 26th 2024.
- Design of innovative photo catalyst for water purification, Application number 202441050912A on July 26th 2024.
- PHOTOVOLTAIC PUMPING TECHNOLOGY FOR RURAL DEVELOPMENT AND AGRICULTURAL USAGE, Application Number 202441062455 A On Sep 2024.
- DEGRADATION OF WASTE WATER USING FOXTAIL PALM FRUIT, Application Number 202441063685A on Sep 2024.
- AIR QUALITY FORECASTING THROUGH THE RANDOM FOREST MACHINE LEARNING ALGORITHM, Application Number 202441063717 A on Sep 2024
- ENERGY EFFICIENT ENHANCED K-MEANS CLUSTERING ROUTING PROTOCOL FOR WIRELESS SENSOR NETWORKS, Application Number 202441063679A on Sep 2024.
- HIERARCHICAL CORE-SHELL NANOSTRUCTURES : FABRICATION AND EVALUATION OF METAL OXIDE AND RARE EARTH OXIDE, Application Number- 202441063682A on Sep 2024.
- DEEP LEARNING IN EDUCATION: FROM AUTOMATED FEEDBACK TO ADAPTIVE TUTORING SYSTEM USING NVIDIA TECHNOLOGY, Application Number 202441076478A on Oct 2024.
- REAL TIME 3D VISUALIZATION OF CALCULUS CONCEPTS USING HIGH PERFORMANCE AI MODELS, Application Number- 202441076489A, on Oct 2024.
- MACHINE LEARNING TECHNIQUES FOR ENHANCED CROP SELECTION AND SUSTAINABILITY, Application Number- 202441076475A on Oct 2024.
- SOL-GEL METHOD FOR CREATING BA AND CA-DOPED FLOWERLIKE FERRATES AND THEIR PHOTOCATALYTIC PERFORMANCE, Application Number- 202441071652 A on Oct 2024.
- Using Data Science techniques Emphasizing the best cashless plan system for family tours, Application Number- 202441072689A on Oct 2024.
- HIGH-EFFICIENCY PEROVSKITE-BASED OPTOELECTRONIC DEVICES AND SYSTEMS, Application Number- 202441087081 A on Nov 2024.
- DEVELOPMENT OF TB3+DY3+CO-DOPED BORO-PHOSPHATE GLASS FOR COOL WHITE LED AND RADIATION SHIELDING, Application Number- 202441087080 A on Nov 2024.
- DOMESTIC WATER HEATER FOR ROYAL CITIES, Application number- 202441087071 A, on Nov 2024.
- DEVELOPMENT OF PURE AND DOPED ZNTIO₃, PBTIO₃, AND MGTIO₃, PEROVSKITE NANOPARTICLES FOR EFFICIENT PHOTOCATALYTIC, Application Number- 202441087074 A, on Nov 2024.

ACHIEVEMENTS AND AWARDS:

- Academic and researcher Award 2024
- Best Teacher Award 2012-Saveetha engineering College
- Social Awareness Award 2019
- Best mentor Award 2020-AMET university
- National Science Award 2021
- The Real Super Woman Award 2022
- SPOC Award –Leadership Programme-2023

- The best women Research and life time Award 2023

SPECIAL SESSIONS DELIVERED:

- Invited as a Session Chair International Conference on Recent Evolution and Adoptable Technologies in Engineering (iCREATE20) during 26.03.2020 to 27.03.2020 at Erode sengunthar engineering College, Perungudi
- Invited as Chief Guest for First year Student Association Inauguration Student-chapters" on 23.09.2019. At at Erode sengunthar engineering College, Perungudi
- Invited Talk on "Basic concepts in physics "for first year BE/B.Tech Students on 24.09.19 at Erode sengunthar engineering College, Perungudi
- Invited Talk on "Nano materials and its applications" International Conference on Advanced Materials for Energy and Environmental Applications 21st Feb (ICAMEA-2020 at ThiruKolanjiappar Govt Arts & Science college, Virudhachalam.
- **Invited Talk**-Resource Person "Webinar on Basics in physics" for B.Sc Physics Students on 04.09.2020 at Rabiammal Ahamed Maideen College For women , Thiruvarur (Affiliated to Bharathidasan University).
- **Chairperson** for the Two Days National Virtual conference on Institutionalization of Quality Assurance Strategies by IQAC in Higher Education Institutions"-IQASIH2022, on 15th and 16th February 2022 by 1.50 PM funded by National Assessment and Accreditation Council (NAAC), organized by the IQACAMET.
- Mentor of project No. entitled "Advanced Nano Materials for Diverse Application".- CSIR - SUMMER RESEARCH TRAINING PROGRAM 2020
- Resource Person in the webinar entitled "Recent Developments & Future Advancements in Nano Technology" hosted by the dept of physics, Nehru Institute of Technology Coimbatore on 05.05.2021
- Resource Person in the webinar entitled "Nanomaterials: Synthesis & Applications – An Overview" hosted by the dept of Science & Humanities Chettinad College of Engineering & Technology Coimbatore on 05.06.2021
- Resource Person in the webinar entitled "Nanomaterials for Energy and Storage Applications" in ACS College of Engineering Bangalore 12.06.2021.
- Invited speaker-CSIR sponsored two days National conference on "DEVELOPMENT IN ORGANIC –INORGANIC HALIDE PEROVSKITE MATERIALS AND ITS MODERN APPLICATIONS ON 22-23RD DEC 2021 AT Nehru Institute of Technology, Coimbatore.
- Resource person for the 'Science Day Seminar' on 28.02.2022 at Theivanai Ammal College of Education, Villupuram.
- RESOURCE PERSON IN National seminar on RECENT ADVANCES IN SOLAR ENERGY MATERIALS AND PHOTOCATALYSIS (RASEP-2023)-21ST JAN 2023
- Resource Person in one day seminar on Interdisciplinary Research Applications in chemistry at Vellalar College for women, Erode on 17th Feb 2023. Efficacy of Semiconducting Materials in Photocatalytic degradation
- GUEST SPEAKER On Recent Advances in Nanomaterials and Nanotechnology" from August 21st 2023. The program is being conducted by the Department of Science and Humanities at KIT-Kalaighnarkaranidhi Institute of Technology in Coimbatore.
- Invited talk -Faculty Development Program, Online, on "Innovations in Materials for Optical and Energy Storage/Conversion Applications" scheduled to take place from 2nd August at Nehru Institute of Technology, Coimbatore-641105
- Resource Person on Faculty Development Program titled Biomedical Applications of versatile Nano ZnO at Saveetha College of Pharmacy on 10th February 2023.
- Faculty Development Programme (FDP) on Recent Trends in Smart Materials and Their Applications, 10 February 2020, Department of Physics, Academy of Maritime

Education and Training (AMET) Deemed to be University, Chennai-603112, Tamil Nadu.

- Seminar on Overview of IPR and Patent Filing Procedures -27.08.2022 Resource Person:Dr.Satish Kumar Assistant Director Ministry of Micro Small & Medium Enterprises (MSME) Government of India.
- Elocution Competition conducted in association with Arivial Sangam-23/06/2022
- Coordinator Building Competency For Effective Leadership on 16th December 2022.Resource Person:Mr.C.Kamaraj IASMD&CEO Tamilnadu Cement Cooperation.
- Organized Guest Lecture on “ The role of Computer Electronics & Communication Technologies in Advanced Applications-A Bird Eye View” on 20th December 2022 at Saveetha Engineering College.Resource Person :Dr.V.N.Mani Scientist Head , High Purity Materials Division –Hydrabath
- Organized National Science day 17th March 2023 at Saveetha Engineering College Resource person:Prof. N. Ramesh Babu V Balaraman Institute Chair Professor Honorary Professor, College of Engineering at Swansea University, UK (2021 - 2024) Secretary, Advanced Manufacturing Technology Development Centre Department of Mechanical Engineering , IIT Madras
- Guest Lecture on Quantum Computing on 23 th November 2023, Resource Person: V N Prem Anand P. Eng (UK) FSPE, FIET, MBCS(UK), FInstCPD(UK), MIEEE(USA), MIITP(NZ), FIoD(Ind), Vice President , Cyber Society of India Director, Techiespeaks OPC P Lt
- Coordinator –Network of Saveetha Techpreneurs Entrepreneurship Summit [-NES’23 Resource Person:Mr.K.S.Kandasamy , IASMD-THADCOResource Person: Shri.M.Balasubramaniam (Bala MS) Board Director & Digital Transformation Leader , Chief Executive Officer, Star Infinity INC.
- Coordinator- Seminar on Content Creation & Entrepreneurship On 28th August 2023 Resource Person:Mr.Sudharsanan Ganapathy Founder & CEO The Social Company.
- Coordinator-KAVACH 2023 Internal Cyber security Hackathon Resource Person :Mr.Ravishankar Founder Jaiykalam
- Coordinator- DRESTEIN 2K23 Innovations from E-waste –Theme –Design an innovative Prototype of e-waste artifacts on 3rd November 2023.
- Acted as a Jury in AIC –RAISE HACKATHON to identify and Invest in the Student Ideas that can build a better Future on 25th March 2023. At Erode Sengunthar Engineering College, Erode.
- Jury for Musical 35th Arivukalanjiam Award 2022 competition for childrens, 13th November 2022.
- Jury in 'National Level Project Competition' STIC 20203 for high school students in grades IX to XII at Saveetha Engineering College (Autonomous) on Dec. 1st 2023.
- Organizing Team member for SPIN WHATTS HUMPHREY AWARD NOV 12TH 2022
- Organizing Team member and Master of ceremony for FICCI AWARD ON 08TH DECEMBER 2022-FICCI TNIE Startup STAR Awards The event will be held at Taj Club House, Chennai on 8th of December ‘2022. The awards will be revealed to everyone during the presentation of awards by the Chief Guest, Hon. IT Minister of Tamil Nadu, Thiru. Mano Thangaraj.
- Organizing Team member for FICCI START-UP STAR AWARDS ON 8TH December 2022.
- Delivered the lecture on ‘Radio Isotopes in Food and Agriculture’ and to act as a jury for the event of paper presentation on 14.12.2023.on “CONTRIBUTIONS OF “STEM”(SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS) TO NUCLEAR RESEARCH AND TECHNOLOGICAL INNOVATIONS” DAE-BRNS Sponsored Technical Symposium at Erode Sengunthar Engineering College, Perundurai.
- Delivered an Invited Talk at the 7th International Conference on Recent Trends in Applied

Science and Technology (ICRTAST-2024) held on 2nd & 3rd February 2024 organized by Engineering Physics, FEAT, Annamalai University, Annamalai Nagar.

- Delivered a lecture on Renewable and nonrenewable Energy Sources and their impact on current scenario –Faculty Development Programme in Nehru Institute of Technology on 28th August 2024.

CONFERENCES/SEMINARS/FDP/WORKSHOPS ATTENDED:

S. No	Title of the faculty Development Programme attended	Duration	Organized by	Date
1	“Application of new materials in emerging field”	7 Days	Department of Physics, Sathyabama Institute of Science and Technology, Chennai, through Zoom Video Communications	24 - 30, June 2020.
2	“Strategies to improve the Citation Metrics and Research Impact”	1 Day	AMET University Chennai	15 May 2020.
3	“Smart Micro Grids and Energy storage using Homer and PV system,”	2 Day	AMET University Chennai	19-20 September 2019.
4	“Renewable and Biodegradable Nanocomposites”	1 Day	AMET University Chennai	16 th October 2019
5	“Novel Strategies and Applications in Materials Sciences”	6 Day	Dr.R.KShanmugan Arts and Science College, Kallakurichi, Tamil Nadu.	26-31, December 2019
6	“The crux of online teaching for low internet bandwidth”	1 Day	AMET University Chennai	24th May 2020
7	Significance of CO and PO Mapping in Course attainment	1 Day	AMET University Chennai	17th June 2020.
8	Indian Association for Crystal Growth (IACG)	10 Days	SSN Research Centre, SSN Institutions (Autonomous) Chennai-603110, Tamil Nadu, India	14-23 May 2020
9	One week Online Short Term Training Program on Recent Progress in Material Science and Engineering (STTP - RPMSE)	7 Days	Department of Applied Physics, Jabalpur Engineering College, Jabalpur, Madhya Pradesh, India	24th-28th August 2020
10	Online Short Term Course on “Recent Advances in Nanoscience and Nanotechnology (RANN-2020)	7 Days	Department of Physics, National Institute of Technology Srinagar (J&K), UT (An Institute of National Importance under Ministry of HRD, Govt. of India)	24th-28th August 2020
11	Remarkable Structural, Magnetic and Microwave Adsorption Properties of Rare Earth-Doped Mn-Cu	1 day	Department of Physics, Kristu Jayanti College (Autonomous), Bangalore	04-05-2020

	Ferrites & In-situ Characterization of Materials at Elevated Temperatures			
12	Evolution of Teaching Learning Process - post COVID 19	5 days	Bharath Institute of Higher & Research, Chennai	11/05/2020 to 15/05/2020
13	Strategies to improve the Citation Metrics and Research impact	1 day	Human Resource Development Centre ,Amet University	15-05-2020
14	Faculty Awareness Programme on NBA to keep in touch with NBA Accreditation	1 day	PACE Institute of Technology and Sciences, Ongole	17-05-2020
15	Course Planning and Delivery through Online	1 day	IQAC, AMET University	25-05-2020
16	Statistical Mechanics	5 days	Department of Physics, PSGR Krishnammal College for Women, Coimbatore	25-05-2020 to 29-05-2020
17	Advancement in Material Science	2 days	Science Club, Jeppier Institute of Technology	05-06-2020 to 06-06-2020
18	E-Content Development	4 days	IQAC, AMET University	12/06/2020 to 15/06/2020
19	Hands on exposure in Moodle Learning Management System	7 days	PG and Research Department of Chemistry, Auxilium College, Vellore & Spoken Tutorial Project, IIT Bombay	08/06/2020 to 14/06/2020
20	Applications of New materials in emerging fields	7 days	Department of Physics, Sathyabama Institute of Science and Technology	23/06/2020 to 30/06/2020
21	Environmental Sustainability & Green Energy	5 days	Electrical Engineering Department, GWCET, Nagpur	29/06/2020 to 03/07/2020
22	Skill Development Using Learning Assistance Tools	5 days	Research Department of Physics, Jamal Mohamed College, Tiruchirappalli	13/07/2020 to 17/07/2020
23	Advanced Materials for energy storage applications	5 days	Department of Physics, Velammal Institute of Technology	18/07/2020 to 22/07/2020
24	Advances in Computational and Experimental Research in Physics	14 days	Department of Physics, SRM Institute of Science and Technology, Chennai	27/07/2020 to 09/08/2020
25	Effective Teaching Online methodology	1 day	AMET University Chennai	10th August 2020
26	"Stem Cell Characterization and Advances in its Research and Applications"	12 days	Sri Venkateswara College of Engineering, Sriperumbudur	27/11/2017 to 08/12/2017
27	Characterization of Materials	2 days	Sri Sairam Inst of Technology, Tambaram	20/07/2017 to 21/07/2017
28	Elastic and properties of Materials and its Applications	1 day	RMK Engineering College	18/08/2018

S.No	Title of the Workshop/Seminar Attended	Duration	Organized by	Date
1	International Conference on Recent Advancements in Materials Science (NewPhy 2020)	1 day	Department of Physics, The New College, Chennai	21/01/2020
2	8th National Conference on Hierarchically Structured Materials-NCHSM 2020	2 days	Department of Physics SRM University Ramapuram Campus	21/02/2020 to 22/02/2020
3	E-Symposium on Physics meets Biology for COVID19 Management	1 day	Department of Physics, Maharaja Sayajirao University of Baroda, Vadodara, Gujarat.	23-06-2020
4	Indian Summer School of Crystal Growth (ISSCG-2020)	10 days	SSN Research Center, SSN Institutions & Indian Association for Crystal Growth (IACG)	14/05/2020 to 23/05/2020
5	Physics-Gravity	1 day	ALISON Learner Record	04-06-2020
6	Understanding Thermodynamics for Science and Engineering	1 day	ALISON Learner Record	04-06-2020
7	Chemistry in Our Day-to-day Life	5 days	PG and Research Department of Chemistry, Jamal Mohamed College, Tiruchirappalli	04/06/2020 to 08/06/2020
8	Webinar on Biotechnological and Nanotechnological Application for Marine Bioresources Augmentation	1 day	Satyabhama Institute of Science and Technology, Chennai	05-05-2020
9	Webinar on The Inspiring World of Nanomaterials	1 day	Merck Life Science Private Limited, Mumbai	07-05-2020
10	Webinar on “Conceptual and Applied Physics”	4 days	Department of Physics, School of Science, R.K University and Department of Nanoscience and Advanced Materials, Saurashtra University, Rajkot	05/05/2020 to 08/05/2020
11	Webinar on “Crystallography and its Applications”	1 day	Department of Science & Humanities, Er. Perumal Manimekalai college of Engineering, Hosur	08-05-2020
12	webinar on “Application of Natural Dyes”	1 day	Erode Sengunthar Engineering College	11-05-2020
13	Webinar on “How to write a Research Papers?”	1 day	Erode Sengunthar Engineering College	15-05-2020
14	webinar on “Outcome Based Education”.Session-2 “CO-PO Assessment and	2 days	PEC-IQAC	14/05/2020 to 15/05/2020

Attainment process”

15	Webinar on "SuperCapacitors: New Age Energy Storage Devices	1 day	Ayya Nadar Janaki Ammal College, SIVAKASI	19-05-2020
16	Webinar on “ Entrepreneurial Challenges & Opportunities”	1 day	Rathinam College of Arts and Science, Coimabtoe	20-05-2020
17	Webinar on 3D Printed Bio Ceramics for Medical Applications	1 day	Dept of Physics, Arignar Anna Govt Arts and Science College, Karaikal, Puducherry	20-05-2020
18	webinar on "Micro, nano and atomic scale approaches in Electronic applications"	1 day	Erode Arts and Science college, Dept of Electronics.	21-05-2020
19	WEBINAR on "SENSORS & MICROCONTROLLERS and EARTH'S MAGNETIC FIELD	1 day	Quaid -E - Millath Government College for Women, Chennai	06-06-2020
20	webinar "CO-PO Attainment Computation and Outcomes Analysis	1 day	In Pods	09-06-2020
21	Webinar on "Nanomaterials for Solar Cell Applications"	1 day	Department of Physics, Amet University	10-06-2020
22	International Webinar Series	2 days	PG and Research Department of the Physics, ThiruKolanjiappar Government Arts College	11/06/2020 to 12/06/2020
23	Webinar on Nanostructured Metal Oxides for Supercapacitor Applications (IWNMS-2020)	1 day	Department of Physics, Trinity Arts and Science College for Women, Namakkal	12-06-2020
24	Webinar on COVID 19: Yesterday, Today and Tomorrow	1 day	RMK Engineering College	14-06-2020
25	Calculus: Origin, Basic Concepts and Applications in Real life	1 day	Cit Chennai, Moderator, Dr.Satyajit Roy	19-06-2020
26	Webinar Series on Astronomy and Astrophysics	1 day	Department of Applied Physics, Karunya Institute of Technology and Sciences	19-06-2020
27	Separation of Ultrasound Noble Metal nanoclusters using PAGE Technique	1 day	Department of Chemistry, Sri Venkateswara college of engineering	19-06-2020
28	Webinar On “IMPACT OF COVID TEACHERLESS TEACHING- THE EKALAVYA EFFECT	1 day	AMET UNIVERSITY	20-06-2020

29	Basic Author Workshop Research Article Writing & Reference Management Using Mendeley	1 day	Faculty of Science, Annamalai University in collaboration with ELSEVIER	22-06-2020
30	Role of Nanoscience in Health Care Materials" International Webinar on Role of Nanoscience in Healthcare Materials	1 day	PG & Research Department of Physics in association with IQAC of Government Arts College (Autonomous), Salem	22-06-2020
31	International webinar lecture series on Energy physics	1 day	Dept of physics, Govt Arts College, kumbakonam	23-06-2020
32	ADVANCES AND CURRENT TRENDS IN AEROSPACE RESEARCH WITH CURRENT SAMPLES	1 day	Lovely Professional University, Punjab and organized by Department of Mechanical Engineering, Francis Xavier Engineering College, Tirunelveli	27-06-2020
33	Advanced Materials and Modern Applications AMMA 2020	2 days	Department of Electronics and Communication Engineering together with SSNRC, SSN College of Engineering, Chennai	01/07/2020 to 02/07/2020
34	webinar on “Ultrafine grained materials: Old material with futuristic properties”	1 day	Department of Mechanical Engineering, Indian Institute of Technology Bhilai	04-07-2020
35	Webinar on The Exciting Story of Exoplanets	1 day	Department of Physics, Karunya Institute of Technology and Sciences	08-07-2020
36	Electrochemical impedance Spectroscopy	1 day	Sri Ramakrishna Institute of Technology Coimbatore	15-07-2020
37	Investigation of the effect of cracks on vibration parameters of a cantilever beam	1 day		07-07-2020
38	Carbon Nanostructures and its Applications	2 days	Department of Science, St. Joseph's College of Engineering, OMR, Chennai	20/07/2020 to 21/07/2020
39	webinar on “Preparation Methods and Deposition Techniques of Nanostructures	1 day	Centre for Nanoscience and Technology, Anna University, Chennai	25-07-2020
40	Webinar on “Development of Ultra High Temperature Materials for Hypersonic Applications	1 day	Department of Physics, SRM Institute of Science and Technology, Ramapuram Campus, Chennai	23-07-2020
41	Chemistry in Circular Economy & Sustainability" (CHEMinar-20)	3 days	Department of Chemistry, Directorate of Distance Education, Madurai Kamaraj University	29/07/2020 to 31/07/2020

42	Materials for Energy Storage Devices	1 day	Department of Physics, National Engineering College, Kovilpatti	21st August 2020
43	National Seminar on Applications of Vibrational Spectroscopy	1 day	Department of Physics, SRM Institute of Science and Technology, Ramapuram Campus, Chennai	29th August 2020
44	Smart Materials Sensors and Devices (SMSED -2020)	6 days	Department of Electronics and Communication, SSN College of Engineering, Chennai	25/05/2020 to 30/05/2020
45	Innovation product Design Using Arduino	1 day	Atal Incubation centre , Pondicherry Engineering college,secured 52% in the online Exam	17-06-2020
46	Science Academics Science Leadership Workshop	7 days	Central University of Punjab, Bathinda, India	22/06/2020 to 28/06/2020
47	Materials Technology Advancement in Current Scenario - MTACS20	7 days	Satyabhama Institute of Science and Technology, Chennai	04/07/2020 to 10/07/2020
48	E-symposium on Physics meets Biology for COVID19 Management	1 day	Department of Physics, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat.	23rd June 2020
48	"Challenges and Recent Developments in Welding of Non-Ferrous Alloys"	2 days	Sri Venkateswara College of Engineering, Sriperumbudur	24/11/2017 to 25/11/2017
49	One day National level workshop on, "Instrumentation Techniques for Advanced Research	1 day	Sri Venkateswara College of Engineering, Sriperumbudur	28/07/2017
50	"National Conference on Signal Processing, Communication and Networking (NCSPCN - 2018)" ECE DEPT	1 day	Sri Venkateswara College of Engineering, Sriperumbudur	16/04/2018
51	"3rd International Conference on Functional Materials (ICFM 2018)"	2 days	SCSVMV UNIVERSITY, &Department of Applied Physics SVCE	25/06/2018 to 26/06/2018
52	"3rdInternational Conference on Functional Materials (ICFM 2018	2 days	Poster Presentation SCSVMV UNIVERSITY, &Department of Applied Physics SVCE	25/06/2018 to 26/06/2018

53	Advanced Nanomaterials for energy, Environment & Health care (ANEH 2018)	1 day	KSR college of Arts and Science college for women, Tiruchengodu,.	01/09/2018
54	Guest Lecture on, “Recent Advancement in Chemical Engineering”	1 day	Sri Venkateswara College of Engineering, Sriperumbudur	08/08/2017
55	Guest Lecture on, “An Introduction to wearable electronics”	1 day	Sri Venkateswara College of Engineering, Sriperumbudur	23/08/2017
56	Guest Lecture on, “Space Physics and mission”	1 day	Sri Venkateswara College of Engineering, Sriperumbudur	20/10/2017
57	Workshop on Changing times and Pedagogy Preparedness	1 day	Sri Venkateswara College of Engineering, Sriperumbudur	08/09/2018
58	2 nd INTERNATIONAL CONFERENCE ON RECENT TRENDS IN ANALYTICAL CHEMISTRY (ICORTAC-2018)	4 days	University of Madras	15/03/18 to 17/03/18
59	"INTERNATIONAL CONFERENCE ON EMERGING TRENDS IN ENGINEERING, SCIENCE, AND SUSTAINABLE TECHNOLOGY "IETSST-2018	1 day	Erode Sengunthar Engineering College, Erode	05/04/2018
60	Faculty research day “Effect of Gadolinium, cobalt and Chromium doping on structural, Optical and Photocatalytic properties of ZnO Nanoparticles	1 day	Sri Venkateswara College of Engineering, Sriperumbudur	26/04/2018
61	Faulty research day “Effet of addisive performance and & emission characteristis of DI engine by EGR”	1 day	Sri Venkateswara College of Engineering, Sriperumbudur	26/04/2018

PROFESSIONAL MEMBERSHIPS:

- Indian Association for Crystal growth-(IACG)
- Scientific and Technical Research Association(STRA)
- All India Council For Technical Skill Development(AICTSD)
- Asian Exercise and Sport Science Association(AESA)
- Indian Association Of Physics Teachers (IAPT)
- Indian Science and Techmology Association (ISTA)

Books/Reports/**Chapters**/General articles etc.

- Book Chapter: "Recent Advances in Counter Electrode Materials for Dye-Sensitized Solar Cells" C.R. Kalaiselvi, T.S.Senthil*, [S.Kalpana](#), Chapter 1: Function of Counter Electrode and its Characterizations Jenny Stanford Publishing, Singapore (Formerly Pan Stan ford Publishing 2020).
- Book: Electric Circuits & Electron Devices, S.Kalpanarajan,S.malathi,M.Sivakumar, Sri MaruthiPublications,Chennai, IISBN 978-93-80757-40-7, JAN 2011

OTHER DETAILS (If any):

1. FDP/GUEST LECTURE/ SEMINAR/CONFERENCE ORGANISED

- **ORGANISED DST-SERB Sponsored "International Conference** on Advances in Nanomaterial-Based Sensors: Impacting Environmental Pollution Detection through Artificial Intelligence - ICANS' 24" on December **19th and 20th, 2024**
- **ORGANISED Guest LECTURE**“Health-our greatest wealth”On **25th October 2024**. (Friday) 10.00 am-12.00 noon, Resource Person Dr. Vinitha.G,: Professor in the division of physics , school of advancedsciences ,VIT-chennai
- **Organized Guest Lecture** “ Statistics and data analysis” on **31st August 2024**, Resource person : Dr. B. Ravikumar, Scientist,CSIR- Central Leather Research Institute,Chennai.
- **Organized National Science day 17th March 2023** at Saveetha Engineering College Resourceperson:Prof. N. Ramesh BabuVBalaraman Institute Chair Professor Honorary Professor, College of Engineering at Swansea University, UK (2021 - 2024)Secretary, Advanced Manufacturing Technology Development Centre Department of Mechanical Engineering ,IIT Madras
- **Organized Guest Lecture** on Quantum Computing on **23rd November 2023**,Resource Person: V N PremAnandP.Eng (UK) FSPE, FIET, MBCS(UK),FInstCPD(UK), MIEEE(USA),MIITP(NZ), FloD(Ind),Vice President , Cyber Society of IndiaDirector, Techiespeaks OPC P lt.
- **Organized Elocution Compettion** conducted in association with Arivial Sangam-**June 23rd 2022**
- **Organized Seminar** on Overview of IPR and Patent Filing Procedures -**27th August 2022**. Resource Person:Dr.Satish Kumar Assistant Director Ministry of Micro Small & Medium Enterprises (MSME) Government of India.
- **Coordinator** Building Competency For Effective Leadership on **16th December 2022**.Resource Person: Mr.C.Kamaraj IASMD&CEO Tamilnadu Cement Cooperation.
- **Organized Guest Lecture** on “ The role of Computer Electronics & Communication Technologies in Advanced Applications-A Bird Eye View” on **20th December 2022** at Saveetha Engineering College.Resource Person :Dr.V.N.ManiScientist Head , High Purity Materials Division –Hydrabath
- **OrganizedddFaculty Development Programme (FDP)** on Recent Trends in Smart Materials and Their Applications, 10 February 2020, Department of Physics, Academy of Maritime Education and Training (AMET) Deemed to be University, Chennai-603112, Tamil Nadu.

2. 2. Extracurricular Activities SPIN Awards –Event organizer ,FICCI-Team Member ,Women’s

3. Papers Published:

1. **Kalpana, S.**, Dar, M.A., Fareed, S.S., Arularasan, P."Comprehensive investigation of geometrical parameters utilizing various XRD methods and their impact on the electrochemical performance of SnS₂ nanoparticles," Indian Journal of Physics, 2024, 98(13), pp. 4437–4449.
2. Balasubramanian, V., **Kalpana, S.**, Anitha, R., Senthil, T.S. Photocatalytic activity of Ba, Ca-doped flowerlike ferrates prepared via sol-gel method Materials Science in Semiconductor Processing, 2024, 182, 108732.
3. AP Dhinakaran, P Vinothkumar, TS Senthil, **S Kalpana**. Investigation on luminescent characteristics of Tb³⁺/Dy³⁺co-doped boro-phosphate glass for cool white LED and radiation shielding applications. Applied Physics A 130 (10), 709.
4. Kasthuri, K., Kumar, J.K., Rajkumar, P., **Kalpana, S.**, Balasubramani, V.Feasible antibacterial nanomaterials: Copper oxide nanoparticles synthesized using dandelion leaf extract Inorganic Chemistry Communications, 2024, 167, 112804
5. **S. Kalpana**, C.R. Kalaiselvi, R. Jeyachitra, T.S. Senthil, (2024), "Enhanced Photocatalytic Hydrogen Production of Ag and N-Doped NaTaO₃ Perovskite Nanocubes", Desalination and Water Treatment, ISSN: 1944-3986 (Q3)
6. **S. Kalpana**, N. Senthilkumar, R. Jeyachitra, T.S. Senthil,(2024) "Synthesis of barium-doped β-Bi₂O₃ photocatalyst with enhanced degradation of methylene blue and rhodamine-B dyes under UV–Vis light irradiation", Materials Science and Engineering: B, 306, 117483 ISSN: 1873-4944(Q2)
7. M Sangeetha, **S Kalpana**, N Senthilkumar, TS Senthil, (2024) "Investigation on Visible-light induced photocatalytic activity for Pure, Ce: doped TiO₂ and B: Ce co-doped TiO₂ catalysts", Optik, 301, 171687 (Q2)
8. **S Kalpana**, P Vinothkumar, TS Senthil, (2024), "Investigation on single rare earth Dy³⁺ doped silver boro-phosphate glass for radiation shielding and LED application", Applied Physics A 130(5), 1-14 ISSN: 1432-0630 (Q2)
9. V. Balasubramanian, R. Jeyachitra, T. S. Senthil, **S. Kalpana**, (2024) "Enhanced photocatalytic degradation of pure and Cu-doped ZnO nanoparticles prepared under Co-precipitation method", Journal of Ovonic Research, Vol. 20, No. 1, January - February 2024, p. 103 – 113.
10. Dar, Mohd Arif^{a, b}, **S. Kalpana**; ^c; Arularasan P.^f; Fareed, S. Sheik^g; Electrochemical performance of Fe-doped SnSe material electrodes for supercapacitors Journal of Energy Storage, 2024, 94, 112403
11. **Kalpana, S.**, Kalaiselvi, C.R., Jeyachitra, R., Senthil, T.S. Enhanced photocatalytic hydrogen production of Ag and N-doped NaTaO₃ perovskite nanocubes, Desalination and Water Treatment, 2024, 319, 100448
12. Dhinakaran, A.P., Vinothkumar, P., Senthil, T.S., **Kalpana, S.** Investigation on structural, optical properties of Sm³⁺ doped antimony boro-phosphate glass for warm white light emitting diode and radiation shielding applications Journal of Optics (India), 2024.
13. Dar, M.A., **S. Kalpana** Dar, M.A., Ahmed, S.R., Rather, M.A., ... Ahamed, S.R., Ahmad, Z. Rather, M.A., ... Ahamed, S.R., Ahmad, Z. **The features of the**

solvothermal synthesis of SnSe nanosheets and nanoflowers for supercapacitor applications, Inorganic Chemistry Communications, 2023, 153, 110838.

14. Kayalvizhi, K., Balakrishnan, C., Suppuraj, P., ... **Kalpana, S.**, Senthana, S. Synthesis, structural characterization, Hirshfeld surface and theoretical studies of 2-bromopyridinium picrate, *Molecular Crystals and Liquid Crystals*, 2023, 760(1), pp. 85–98.
15. Rafi Ahamed, S., Suppuraj, P., Balakrishnan, C., **Kalpana, S.** Physicochemical Analytical Studies on Yttrium-Doped Triglycine Sulfate Single Crystals, *Crystal Research and Technology*, 2023, 58(4), 2200225.
16. R Abirami, T.S. Senthil, **S Kalpana**, L Kungumadevi, M Kang, “Hydrothermal Synthesis of Pure PbTiO₃ and Silver doped PbTiO₃ Perovskite nanoparticles for enhanced Photocatalytic activity”, *Materials letters* 279, (2020) 128507
17. M Sangeetha, **S Kalpana**, N Senthilkumar, TS Senthil, (2024) “Investigation on Visible-light induced photocatalytic activity for Pure, Ce: doped TiO₂ and B: Ce co-doped TiO₂ catalysts”, *Optik*, 301, 171687
18. **Kalpana, S.**, Dar, M.A., Fareed, S.S., Arularasan, P., Comprehensive investigation of geometrical parameters utilizing various XRD methods and their impact on the electrochemical performance of SnS₂ nanoparticles, *Indian Journal of Physics*, 2024, 98(13), pp. 4437–4449.
19. **Sukumar Kalpana.**, Bharathi, M., Hirad, A.H., ... Hussein-Al-Ali, S.H., Surya, P. Development of Chitosan-Coated Graphene Oxide and Iron Oxide Nanocomposites for Targeted Delivery of Camptothecin to Liver Cancer Cells, *Chemistry and Biodiversity*, 2024.
20. Thirumavalavan, M., **Sukumar, K.**, Sabarimuthu, S.Q. Trends in green synthesis, pharmaceutical and medical applications of nano ZnO: A review, *Inorganic Chemistry Communications*, 2024, 169, 113002.
21. Munusamy, M.A., **Sukumar, K.**, Bharathi, M., Alarfaj, A.A., Hussein-Al-Ali, S.H. **An Albumin-Based Amygdalin-Glutaraldehyde Nanoparticle Induces Apoptosis in Oral Cancer KB Cells**, *Indian Journal of Pharmaceutical Education and Research*, 2024, 58(4), pp. s1217–s1281.
22. Mohanapriya, S. **Kalpana E.**, Elangovan, S., Janczak, J., ... Ragavendran, V., Marchewka, M.K.
Structure, DFT calculations, spectroscopic characterization, and solvent-dependent HOMO-LUMO studies of 3-(hydroxymethyl) pyridinium 4-hydroxybenzenesulfonate, *Materials Today Communications*, 2024, 41, 110632.
23. Shakila, B., Muruganantham, B., S. **Kalpana**... Hussein-Al-Ali, S.H., Surya, P. Tri-Responsive Drug Delivery System for Lung Cancer Treatment: Enhanced Photothermal Conversion and Targeted Apoptosis in H1299 Cells, *Journal of Medical and Biological Engineering*, 2024, 44(6), pp. 843–858.
24. Praveena, B., Sivanesan, T., Elangovan, S., **Kalpana, S** ... Kanagathara, N., Janczak, J. **Exploring optical, electronic and NLO properties: Growth and characterization of rubidium hydrogen (+)- tartrate crystals** *Optical Materials*, 2025, 158, 116487.
25. Kalyan, S.A., Elangovan, S., **Sukumar, K.**, ... Rao, R.G.S., Marchewka, M.K.
Supramolecular structure, DFT calculation and vibrational characterization of melamin-1-ium oxalurate monohydrate, *Journal of Molecular Structure*, 2025, 1321, 140132.
26. CR Kalaiselvi, TS Senthil, **S Kalpana**, M Kang, (2022) “Repercussion of growth morphology on sodium and potassium tantalates for hydrogen production”, *Solid State Communications* 342.
27. R Abirami, T.S. Senthil, **S Kalpana**, L Kungumadevi, M Kang, “Hydrothermal Synthesis of Pure PbTiO₃ and Silver doped PbTiO₃ Perovskite nanoparticles for enhanced Photocatalytic activity”, *Materials letters* 279, (2020) 128507 (Q2).

28. R Jeyachitra, **S Kalpana**, T.S. Senthil, Misook Kang, “Electrical behavior and enhanced photo-catalytic activity of (Ag, Ni) co-doped ZnO nanoparticles synthesized from Co-precipitation technique”, *Water Science and Technology*, 81 (6), (2020), 1296–1307 (Q2)
29. **S. Kalpana**, S. Sampath Krishnan, A. Bhaskaran, T. S. Senthil, S. V. Elangovan, “Effect of chromium doping on structural, optical and photocatalytic properties of ZnO nanoparticles”, *Optoelectronics and Advanced Materials – Rapid Communications*, 12, (5-6) 2018, p. 353 – 359. ISSN: 2065-3824
30. **S.Kalpana**, S. Sampath Krishnan, T.S. Senthil, S.V.Elangovan, “Cobalt doped Zinc Oxide nanoparticles for photocatalytic applications”, *Journal of Ovonic Research*, 13(5) (2017), 263-269. ISSN: 1584 – 9953.
31. **S. Kalpana**, et al., (2023) “Synthesis, structural characterization, Hirshfeld surface and theoretical studies of 2-bromopyridinium picrate”, *Molecular Crystals and Liquid Crystals*, Vol 760, 85-98.
32. **S Kalpana**, et al., (2022) “Repercussion of growth morphology on sodium and potassium tantalates for hydrogen production”, *Solid State Communications* 342, 114622 ISSN: 0038-1098
33. **S Kalpana**, et al., (2021) “Surfactant concentration influences the morphology and electrochemical properties of CuO Nanoparticles synthesized via microwave method”, *Materials Today: Proceedings* 45, 4020-4025
34. **S Kalpana**, et al., (2020) “Hydrothermal Synthesis of Pure PbTiO₃ and Silver doped PbTiO₃ Perovskite nanoparticles for enhanced Photocatalytic activity”, *Materials letters* 279, 128507
35. **S Kalpana**, et al., (2020) “Electrical behavior and enhanced photo-catalytic activity of (Ag, Ni) co-doped ZnO nanoparticles synthesized from Co-precipitation technique”, *Water Science and Technology*, 81 (6), 1296–1307
36. **S Kalpana**, et al., (2020) “Application of Data Mining in Hydrocarbon Transportation, Storage and Safety Handling”, *International Journal of Innovative Technology and Exploring Engineering*, vol.9 (8), 121-123.
37. **S Kalpana**, et al., (2020) “Applications of Data Mining in Hydrocarbon Exploration, Constraints on Geology and Petroleum Reservoir”, *International Journal of Recent Technology and Engineering* 9 (1), 921-924
38. **S Kalpana**, et al., (2020) “Sm³⁺ induced-SrWO₄ phosphor: analysis of photoluminescence and photocatalytic properties with electron density distribution studies”, *Journal of Materials Science: Materials in Electronics*, 31, 8865–8883
39. **S Kalpana**, et al., (2020) “Physical and mechanical properties on novel conjugated heterocyclic compounds dicyandiamide and 4-(difluoromethoxy)-2-hydroxybenzaldehyde 2-cyanoguanidine as sensor for heavy metals, *International Journal of Scientific & Technology Research*, 9(3), 3409-3411.
40. **S Kalpana**, et al., (2020) “Pseudo-capacitive Properties of CuO/Co₃O₄ Nanoparticles Synthesized Via Hydrothermal Method”, *International Journal of Innovative Technology and Exploring Engineering*, 9 (4), 1932-1934
41. **S Kalpana**, et al., (2020) “Hydrothermal Synthesis of Copper Oxide/Cobalt Oxide Nanoparticles For Supercapacitor Applications”, *International Journal of Scientific & Technology Research*, 9(4), 3826-3828
42. **S Kalpana**, et al., (2019) “Studies on the catalytic activity of CuO/TiO₂/ZnO ternary nanocomposites prepared via one step hydrothermal green approach”, *Materials Research Express* 6 (12), 125043
43. **S Kalpana**, et al., (2019) “Effect of PH and Solid State Parameter Analysis on the Growth and Characterization of Acetic Acid Added Glycine Crystal-A Promising Nonlinear Optical Crystal”, *International Journal of Engineering Research & Technology*, 8 (12), 463-473

44. **S. Kalpana**, et al., (2018) "Effect of chromium doping on structural, optical and photocatalytic properties of ZnO nanoparticles", Optoelectronics and Advanced Materials – Rapid Communications, 12, (5-6), 353 – 359.
45. **S.Kalpana**, et al., (2017) "Cobalt doped Zinc Oxide nanoparticles for photocatalytic applications", Journal of Ovonic Research, 13(5), 263-269.
46. **S.Kalpana**, et al., (2013) "Effect of anion interstitials on the thermoluminescent properties of CaSO₄: Dy", Journal of luminescence 142, 212-219.
47. **S.Kalpana**, et al., (2012) "Low-temperature synthesis of Zn₂SiO₄: Mn green photoluminescence phosphor", Journal of luminescence, 132 (8), 1917-1920
48. **S.Kalpana**, et al., (2012) "Preparation and characterisation of yttrium based luminescence phosphors", Indian Journal of Pure & Applied Physics, Vol. 50, February 2012, pp. 123-128
49. **S.Kalpana**, et al., (2012) "Structural, spectral, thermal, micro hardness, dielectric and etching studies of third order nonlinear optical material Cesium Sulfamate.", Indian Journal of Pure & Applied Physics, Vol. 50, February 2012, pp. 123-128