



**PERIYAR
MANIAMMAI**
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University)
Established Under Sec. 3 of UGC Act, 1956 • NAAC Accredited

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PROGRAMME REPORT ON

Conference-Recent Advancement in Materials Science and Spectroscopy

Resource Person

Prof. S. Gunasekaran

Organized by

PHYSICS- PMIST

Department of Physics

Periyar Nagar, Vallam, Thanjavur - 613 403, Tamil Nadu, India
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International Conference on Recent Advancements in Materials Science and Spectroscopy (ICRAMS - 2025)

Jointly Organised by

Department of Physics, PMIST,
PG & Research Department of Physics, AVVM Sri Pushpam College, Poondi and
ISPA, Chennai

Objective of the Programme:

The **International Conference on Recent Advancements in Materials Science and Spectroscopy (ICRAMS - 2025)** aims to bring together researchers and experts to discuss cutting-edge developments in materials science and spectroscopy. The conference will focus on emerging trends in nanomaterials, biomaterials, polymers, and advanced spectroscopy techniques for material characterization. It provides a platform for knowledge exchange, interdisciplinary collaboration, and innovation, fostering global research and technological advancements in these fields.

Resource Persons and Session Details:

1. Prof. S. Gunasekaran, Ph.D., D.Sc.,
Dean (R&D),
St. Peter's Institute of Higher Education and Research, Chennai.
Mobile No.: 9962574210
Title: A Light Legendary – Sir CV Raman
Highlighted Keywords: Raman Effect – Nobel Prize in Physics (1930).
Light Scattering – spectroscopy and material science.
Indian Physicist – First Indian Nobel Laureate in Science
Raman Spectroscopy – material characterization
2. Prof. Irena Kostova, Ph.D., D.Sc.,
Department of Chemistry,
Faculty of Pharmacy,
Medical University, Bulgaria.
Mobile No.: +359 899283100
Title: Coordination Chemistry of Lanthanides(III) and Their Pharmacological Activity

Highlighted Keywords: Lanthanide(III) complexes play a crucial role in coordination chemistry due to their stable +3 oxidation state and ability to form high-coordination-number compounds. These complexes exhibit unique spectroscopic properties, including luminescence, making them useful in imaging and diagnostics. Additionally, they have gained attention in pharmacology for their potential **anticancer, antimicrobial, and MRI contrast agent** applications, contributing to advancements in medical and biochemical research.

3. Prof. Jiban Podder, Ph.D., F.B.A.S.,
Professor, Department of Physics,
Bangladesh University of Engineering and Technology,
Bangladesh.
Mobile No.: +880 1552423766
Title: Crystallization of Single Crystals: The Beauty and Importance in Technology
Highlighted Keywords: Single Crystals, Crystallization, High Purity, Structural Perfection, Semiconductors, Optics, Pharmaceuticals, Electronic Devices, Laser Technology, Solar Cells, Materials Science, Innovation.
4. Prof. M. Selvapandiyan, Ph.D.,
Professor,
Department of Physics,
Periyar University Centre for PG & Research Studies,
Dharmapuri.
Mobile No.: 9976493935
Title: Biomass Based Activated Carbon for Energy Storage Device Applications
Highlighted Keywords: sustainable and cost-effective material for energy storage devices. Its high surface area, porosity, and electrical conductivity make it ideal for supercapacitors, batteries, and fuel cells. Derived from renewable sources like agricultural waste and plant materials, it offers an eco-friendly alternative to synthetic carbon materials. The tunable properties of activated carbon enhance electrochemical performance, making it a promising candidate for next-generation energy storage technologies.
5. Dr. S. Kumaresan, Ph.D.
Associate Professor,
Department of Physics,
Arignar Anna Government Arts College, Cheyyar.
Mobile No.: 9843092789

Title: A parametric Influence on assignment of fundamental modes of vibration of molecules - A review on theoretical and experimental method

Highlighted Keywords: fundamental vibrational modes of molecules, parametric factors, molecular symmetry, bond strength, anharmonicity, and environmental effects,

6. Prof. P.K. Praseetha, Ph.D.,
Department of Nanotechnology,
Noorul Islam Centre for Higher Education,
Kumaracoil, Thuckalay,
Kanyakumari.
Mobile No.: 9486855091

Title: Investigating new developments in biomedical technology using cutting-edge nanomaterials

Highlighted Keywords: The integration of nanomaterials in biomedical technology has led to groundbreaking advancements in diagnostics, drug delivery, imaging, and regenerative medicine. Nanoparticles, quantum dots, carbon nanotubes, and nanocomposites offer enhanced properties such as high biocompatibility, targeted drug delivery, and improved imaging resolution. These innovations are revolutionizing cancer therapy, biosensors, tissue engineering, and personalized medicine. Ongoing research in nanomedicine aims to develop more efficient, minimally invasive, and highly effective treatments, shaping the future of healthcare.

7. Dr. P. Janani., Ph.D.,
Instructional Designer Head (Academics),
Echtian Contents Private Limited,
Mumbai.
Mobile No.:9677043489

Title: Role of Reflectance Spectroscopy for Diagnosing Thyroid Disorders and Assessing the Effectiveness of an Ayurvedic Drug Thyronil in the Treatment of Thyroid

Highlighted Keywords: Reflectance Spectroscopy – Non-invasive diagnostic tool, Thyroid Disorders – Detects biochemical and structural changes, Light Absorption & Scattering – Identifies variations in thyroid tissues, Thyronil (Ayurvedic Drug) – Assesses treatment effectiveness, Real-Time Monitoring – Tracks spectral changes during therapy, **Non-Destructive Approach** – Reliable and efficient analysis

No. of Beneficiaries: 170 (including faculty and Research Scholar)

Conference President: Prof. S. Gunasekaran, Founder – President, ISPA.

Convener: Dr. P. Gayathri, HoD/ Physics

Co-Convener: Dr. K. Ravichandran, HoD/ Physics, AVVM Sri Pushpam College, Poondi.

Coordinators: Dr. J. Jayarubi, Assistant Professor (SS)/Physics

Mr. R. Karthick, Assistant Professor (SS)/Physics

Dr. B. Deepa, Asso. Prof./Physics, AVVM Sri Pushpam College, Poondi

Invitation for the Program



**PERIYAR
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**INSTITUTION'S
INNOVATION
COUNCIL**
(Ministry of Education Initiative)



International Conference on RECENT ADVANCEMENTS IN MATERIALS SCIENCE AND SPECTROSCOPY (ICRAMS - 2025)

In commemoration of National Science Day



24 - 25 February, 2025

Time: 9:30 a.m.

Venue: Einstein Hall



DEPARTMENT OF PHYSICS

PERIYAR MANIAMMAI INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University) Vallam, Thanjavur, Tamil Nadu, India.

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PG & RESEARCH DEPARTMENT OF PHYSICS

A.V.V.M. SRI PUSHPAM COLLEGE (AUTONOMOUS)
Poondi, Thanjavur (Dt.), Tamil Nadu, India.

In association with

INDIAN SPECTROPHYSICS ASSOCIATION (ISPA)

Chennai, Tamil Nadu, India.

Programme Schedule

Day 1 (24.02.2025)

Inauguration

- 09: 30 a.m. *Invocation*
- 09: 35 a.m. *Welcome Address*
Dr. P. Gayafliri
Convenor, ICRAMS 2025
- 09: 40 a.m. *Eminence of the Conference*
Prof. S. Gumasekaran, Ph.D., D.Sc.,
Founder-President, ISPA
- 09: 45 a.m. *Presidential Address*
Prof. V. Ramachandran
Hon'ble Vice Chancellor, PMIST
- 09: 55 a.m. *Unveiling the Portrait of Sir C V Raman*
- 10: 05 a.m. *Inaugural Address*
Prof. Irena Kostova, Ph.D., D.Sc.
Faculty of Pharmacy, Sofia Medical University, Bulgaria
- 10: 20 a.m. *Release of Conference Proceedings*
- 10: 25 a.m. *Conferring ISPA Awards*

ISPA Magnificent Women Scientist Award

Prof. Irena Kostova, Ph.D., D.Sc.
Faculty of Pharmacy, Department of Chemistry
Medical University, Sofia, Bulgaria

ISPA Veteran Scientist Award

Dr. Jiban Podder, Ph.D., FRSC (UK), FBAS
Professor, Department of Physics
Dean, Faculty of Science
Bangladesh University of Engineering & Technology
Dhaka, Bangladesh

ISPA Ariviyal Mudhumunavar Sethu. Gunasekaran Award

Dr. A. Alexander, Ph.D.
Assistant Professor of Physics, St. Joseph's college (Autonomous)
Tiruchinappalli

- 10: 40 a.m. *Felicitations Address*
Prof. R. Malliga, Pro Vice-Chancellor PMIST
Dr. P.K. Srividhya, Registrar, PMIST
Dr. D. Jeyasimman, Director Academic Research, PMIST
Prof. M. Selvapandiyar, Ph.D
Professor, Department of Physics
Periyar University Centre for PG & Research Studies
Dharmapuri
- 10: 50 a.m. *Keynote Address*
Dr. Jiban Podder, Ph.D., FRSC (UK), FBAS
Professor, Department of Physics
Dean, Faculty of Science, Bangladesh University of
Engineering & Technology, Dhaka, Bangladesh
- 11: 00 a.m. *Vote of Thanks*
Dr. K. Ravichandran
Co-convenor, ICRAMS 2025
- 11: 05 a.m. *High Tea*

Technical Session

Day 1 (24.02.2025)

Technical Session – I

Chair Person: Prof. Balakumar Pitchai, Director-Research Training & Publications, PMIST

11:30 a.m. – 12:30 p.m.

Prof. Irena Kostova, Ph.D., D.Sc.

Professor, Faculty of Pharmacy Medical University, Sofia Bulgaria
Coordination Chemistry of Lanthanides(III) and Their Pharmacological Activity

Lunch: 12:30 p.m. – 01:30 p.m.

Technical Session – II

Chair Person: Dr. S. Kumaran, Director (Innovation and IPR), PMIST

01:30 p.m. – 02:30 p.m.

Prof. Jiban Podder, Ph.D., FRSC (UK), F.B.A.S

Professor, Department of Physics, Bangladesh University of Engineering and Technology, Bangladesh
Crystallization of Single Crystals: The Beauty and Importance in Technology

Technical Session – III

Chair Person: Dr. AR. Umayal Sundari, Professor, Dept. of Physics, PMIST

02:30 p.m. – 03:30 p.m.

Prof. M. Selvapandiyau, Ph.D.

Professor, Department of Physics, Periyar University Centre for PG & Research Studies, Dharmapuri
Biomass Based Activated Carbon For Energy Storage Device Applications

Tea Break: 03:30 p.m. – 03:45 p.m.

03:45 p.m. – 04:45 p.m.

Oral Session I & Poster Session I

Day 2 (25.02.2025)

Technical Session – IV

Chair Person: Prof. Irena Kostova, Medical University, Sofia, Bulgaria

09:30 a.m. – 10:30 a.m.

Prof. S. Gunasekaran, Ph.D., D.Sc.

Dean (R&D), St. Peter's Institute of Higher Education and Research, Chennai
Tribute to Light Legendary – Sir C V Raman

Tea Break: 10:30 a.m. – 11:00 a.m.

Technical Session – V

Chair Person: Prof. Jiban Podder, BUET, Bangladesh

11:00 a.m. – 12:00 noon

Dr. P. Janani, Ph.D.

Instructional Designer Head (Academics), Ecliptic Contents Private Limited, Mumbai
Role of Reflectance Spectroscopy for Diagnosing Thyroid Disorders and Assessing the Effectiveness of an Ayurvedic Drug Thyronil in the Treatment of Thyroid