## **Report on**

## INTERNATIONAL VIRTUAL CONFERENCE ON PHYSICS OF EMERGING MATERIALS AND MOLECULES (IVCPEMM - 2021)

04<sup>th</sup> and 05<sup>th</sup> March, 2021

Organized by



## PG and Research Department of Physics Sri Vidya Mandir Arts and Science College (Autonomous) (Recognized 2(f) & 12(B) Under UGC Act 1956) Accredited with 'A' grade by NAAC [3.27] Uthangarai – 636 902, Krishnagiri, Tamil Nadu, India

In collaboration with



**INDIAN SPECTROPHYSICS ASSOCIATION (ISPA)** CHENNAI, TAMILNADU, INDIA

### **Convener of the Conference**

Dr. R. Arivuselvi, M.Sc., M.Phil.,SET., Ph.D Assistant Professor and Head, PG and Research Department of Physics Sri Vidya Mandir Arts and Science College (Autonomous) Katteri – 636 902, Uthangarai, Krishnagiri (Dt.), Tamil Nadu

### **Co- ordinators of the Conference**

Mr. K. Venkatesan, M.Sc., M.Phil., (Ph.D) Assistant Professor, PG and Research Department of Physics Sri Vidya Mandir Arts and Science College (Autonomous) Katteri – 636 902, Uthangarai, Krishnagiri (Dt.), Tamil Nadu

Dr. D. Balaji, M.Sc., M.Phil., Ph.D Assistant Professor, PG and Research Department of Physics Sri Vidya Mandir Arts and Science College (Autonomous) Katteri – 636 902, Uthangarai, Krishnagiri (Dt.), Tamil Nadu

### **Conference Report**

On the 04<sup>th</sup> and 05<sup>th</sup> of March, 2021, the PG and Research Department of Physics, Sri Vidya Mandir Arts and Science College (Autonomous), Katteri – 636 902, Uthangarai, Krishnagiri District, Tamil Nadu, in collaboration with the Indian Spectrophysics Association (ISPA), successfully completed the two-day "International Virtual Conference on Physics of Emerging Materials and Molecules (IVCPEMM - 2021). The goal of the conference is for professionals and students working in the fields of spectroscopy, crystallography, biophysics, medical physics, molecular dynamics, materials science, crystal growth, and nanotechnology to share their research experiences and participate in interactive discussions and technical sessions. Colleges and institutions will be able to showcase their services, products, innovations, and research findings at the Conference. The conference would create a platform for the scientists to interact with research scholars on the latest findings in their respective fields. The research papers of the

conference intend to throw light on the application oriented innovative research in their respective fields.

The IVCPEMM - 2021 went for two days including two oral presentation sessions and the each session encompasses a lecture with the lunch break timing of 12.45 pm - 01.45 pm. The morning technical sessions (09.30 am - 12.45 pm) and the afternoon technical sessions (01.45 pm – 04.30 pm) comprised of two lectures each with the morning and afternoon tea break timings of 11.15 am - 11.30 am and 03.00 pm - 03.15 pm, respectively. The resource persons for the IVCPEMM - 2021 were Prof. S. Gunasekaran, Dean, Research& development, St Peter's University, Chennai, Prof. Dr R. Jayavel, Anna University, Dr.M. N. Ponnuswamy, Professor, Centre for Advance Studies, Biophysics and Crystallography, University of Madras, Dr. P. M. Anbarasan, Department of Physics, Periyar University, salem, Dr. S. Kumaresan, Assistant Professor, Govt. Arts College, Cheyyar, Dr. Muthu Senthil Pandiyan, Research Scientist, Department of Physics, SSN Research Center, SSN College, Chennai, Prof. Dr. C.K. Jayasankar, Professor, Department of Physics, Sri Venkateswara University, Tirupathi, Dr.M.V. Reddy, Hydro – Quebec, Montreal, Canada, Dr. S. Kalainathan, Professor & Director, VIT University, Vellore, Dr. C. Sekar, Professor and Head Department of Bioelectronics & Biosensors Alagappa University, Karaikudi, Dr. Jiban Podder, Professor of Physics, Bangladesh University of Engineering & Technology Bangladesh, Prof. Dr. M. Selvapandiyan, Periyar University salem, Dr. Venkatram Reddy Byru, Professor Department of Physics, Central Instrumentation Centre, Warangal, Dr. Suresh Sagadevan, Senior Research Follow, Nanotehnology & Catalysis Research Centre University of Malaya, Malaysia.

### **Inaugural Session**

The Conference inaugural celebration took place on March 4th and 5th, 2021, Dr. R. Arivuselvi, Head and convener (IVCPEMM-2021), Sri Vidya Mandir Arts and Science College's PG and Research Department of Physics had given the welcome address. The workshop's central theme was also revealed by the workshop's convener. Thiru. V. Chandrasekaran, Chairman of the SVM Group of Educational Institutions, gave the Presidential address, expressing his best wishes for the workshop participants' future endeavours. Our most respected Secretary Thiru R.P. Rajee our most respected Principal Dr. T.BALASUBRAMANIAN, Dr. N. Gunasekaran, Vice-

Principal of the Sri Vidya Mandir Arts and Science College, Felicitates the virtual gathering of the International Virtual Conference on Physics of emerging Materials (IVCPEMM –2021). Dr. S. Suresh, our College's COE, revealed the conference's main theme to the participants

Thiru R.P. Rajee , our most respected Secretary, delivers the first soft copy of the proceedings as a CD of IVCPEMM 2021, which was received by our most respected principal, Dr. T. Balasubramanian. Honorable Vice-Chancellor Dr. P. Dananjayan released a hard copy of the IVCPEMM - 2021 proceedings, which were welcomed by the active ISPA President Dr. S. Gunasekaran. The inaugural address is given by Dr. S. Gunasekaran, Dean, Research & Development, St Peter's University, Chennai, and the President of ISPA. The award-giving session followed the introductory address, with Dr. P. Dananjayan , Vice Chancellor of St. Peter's University in Chennai and ISPA receiving the Lifetime Achievement Award. Dr. SenthilKannan, Professor, G.S. Pillay Arts & Science College, Nagapattinam, received the Dr. S. Gunasekaran award. The keynote address will be given by Dr.M.N.Ponnusamy, Emeritus Professor, Department of Crystallography and Biophysics, University of Madras, Chennai.

Prof. K. Venkatesan registered his vote of gratitude to the crowd at the far end of the inaugural gathering

### **Technical Session – First Day**

Dr. M.V. Reddy, Hydro – Quebec, Montreal, Canada, gave the penultimate invited talk on the first day regarding the Structural and Physical Properties of Thin and Bulk Smart Materials for Energy Storage and Conversion. Prof. Dr. R. Jayavel from Anna University led the first session, which focused on nanomaterials for energy and environmental applications. He went over the importance of Nano Science in the development of modern civilization, the importance of nature and its unique components, and the emergence of scientific inventions with the help of nature in great detail. Prof. Dr. M.N. Ponnuswamy of the University of Madras chaired the second technical session of the international conference with his beautiful speech on Biophysics and Crystallography, particularly Tools for Drug Design. Dr. P. M. Anbarasan from the Department of Physics, Periyar University, Salem, spoke about the interaction of extreme laser radiation with radioactive hazardous materials in the third session. He also spoke about Indian Nobel Laureates and their inventions in order to inspire the student delegates, as well as give an indication of the objective of the transition from electronics to photonics. Dr. S. Kumaresan, Assistant Professor, Govt. Arts College, Cheyyar, gave a brief description of Photofabricated Zinc Oxide and Iron Oxide Nanoparticles for Anti- Bacterial Drug Delivery Applications in the fourth session. Finally, on the first day's fifth session, Dr. Muthu Senthil Pandiyan, Research Scientist, Department of Physics SSN Research Center, SSN College, Chennai, discussed the recent development of high quality nonlinear optical (NLO) and ferroelectric single crystals by SR, RSR, and ISR methods for device applications of NLO Materials.

### **Technical Session – Second Day**

Emeritus Prof. S. Gunasekaran, Dean, Research& Development, St Peter's University, Chennai, gave an invited discussion about Sir C.V. Raman in the first session of the International virtual programme on the second day. Dr. S. Kalainathan, Professor & Director, VIT University, Vellore, gave a brief overview of Growth and Characterization of NLO crystals generated by solution in the second session. Dr. K. Jayasankar, UGC – BSR Faculty Fellow Department of Physics Sri Venkateshwara University, Tirupati, spoke about the physics of emerging rare earth doped glasses for photonic applications in the third session. SSN College, Chennai, SSN College, Chennai, SSN College, Chennai, SSN College, Chennai, Dr. C. Sekar, Professor and Head Department of Bioelectronics & Biosensors Alagappa University, Karaikudi, described the science of Kabasura Kudineer and its role in the prevention and control of Coronavirus disease (COVID-2019) in detail.

Dr. Jiban Podder, Professor of Physics at Bangladesh University of Engineering and Technology, gave a talk on the Synthesis and Characterizations of Cu Doped Co3O4 Nanostructured Thin Films via Thermal Spray Pyrolysis for Glucose Sensor Applications, which was followed by Prof. Dr. M. Selvapandiyan, Periyar University Salem, who spoke about the importance of Properties and Applications of Nonlinear Optical Materials – An Introduction. Dr. Venkatram Reddy Byru, Professor Department of Physics, Central Instrumentation Centre, Warangal explained about Synthesis, evaluation of molecular structure from torsional scans and study of molecular characteristics using spectroscopic and DFT methods of some thiosemicarbazones and investigation of their anticanceractivity. Finally in the second day the session was completed with the address of Dr. Suresh Sagadevan, Senior Research Follow, Nanotehnology& Catalysis Research Centre University of Malaya, Malaysia gave special talk about Metal Oxide nano structured for photocatalytic applications.

### Valedictory Session

In the afternoon, the Valedictory Function was initiated with the Welcome Address proposed by the Convener of the "International Virtual Conference on Physics of Emerging Materials and Molecules (IVCPEMM - 2021), Dr. R. Arivuselvi IVCPEMM -2021 delivered the conference report of all the technical sessions in brief to the gathering. The most valuable presidential address to be conveyed by the conference president & Founder of ISPA Dr. S. Gunasekaran, Dean of research, St.Peters university, in his presidential address, highly appreciated the efforts put forth by the organizers for successfully conducting the internation conference in the college. He insisted the student participants to utilize the inspiration gained through this virtual conference.

Secretary Thiru. R.P. Rajee, Additional Secretary Thiru. P. Venkatachalam, Principal Dr. T. Balasubramanian, and Vice-Principal Dr. N. Gunasekaran expressed their gratitude and felicitated the gathering. The Feedback Session followed, in which students and staff from different colleges was asked to share their thoughts on the worldwide virtual conference (IVCPEMM –2021) through open feedback and helpful ideas.

The IVCPEMM –2021 has helped the students in a variety of ways. Students interested in spectroscopy, linear and nonlinear optics, lasers, and other subjects were motivated by the lectures. Significant inputs from the fundamentals to research have been gathered through a series of lectures that will undoubtedly provide a good virtual platform for postgraduate study and spotlight students' research endeavours.

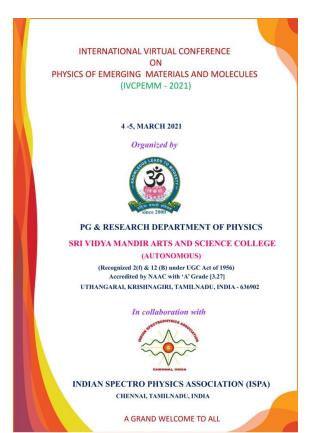
Dr. K.M. Prabu, Assistant Professor of PG and Research Department of Physics, gave the vote of gratitude at the close of the programme.

### **Photo Gallery**

## International Virtual Conference on Physics of Emerging Materials and Molecules

# <u>(IVCPEMM- 2021)</u> Invitation – IVCPEMM-2021

9:45 am- 10: 45 am



Invocation Dr. R. Arivuselvi Welcome Address Assistant Professor and Head PG & Research Department of Physics SVM Arts & Science College (Autonomous) Focal Theme of The Conference : Dr. S. Suresh Assistant Professor of Physics SVM Arts & Science College (Autonomous) : Thiru. V. Chandrasekaran Presidential Address Founder Sri Vidya Mandir Group of Educational Institution Uthangarai, Krishnagiri Inaugural Address : Dr. S. Gunasekaran Dean (R&D), SPIHER, Chennai Founder President, ISPA Life Time Achievement Award **Conferring the Awards** Dr. P. Dananjayan Vice Chancellor, SPIHER, Chennai ISPA Dr. S. Gunasekaran Award Dr. K. SenthilKannan Professor, G.S. Pillay Arts & Science College, Nagapattinam Release of Proceedings Felicitation Dr. N. Gunasekaran Vice - Principal SVM Arts & Science College (Autonomous) Dr. T. Balasubramanian Principal SVM Arts & Science College (Autonomous) Thiru. R. P. Rajee Secretary SVM Arts & Science College (Autonomous) Thiru, P. Venkatachalam Additional Secretary SVM Arts & Science College (Autonomous) Dr. M. N. Ponnuswamy Key Note Address : Professor Center for Advance Studies in Biophysics and Crystallography , University of Madras Chennai - 600025 Vote of Thanks : Mr. K. Venkatesan at Professor of Physics SVM Arts & Science College (Autonomous)

INAGURAL FUNCTION

Thursday

### PROGRAMME SCHEDULE

#### Day -1 (04-03-2021)

Time: 9:45 am - 10:45 am - INAUGURAL FUNCTION

10:45 am - 11:00 am - Break

Time: 11:00 am – 11:30 am Topic: Two Dimensional Nanostructures For Energy Storage Applications For Next Generation Electric Vehicles

Resource Person: Dr. R. Jayavel

Professor, Crystal Growth Centre Coordinator,Centre for Nanoscience and Nanotechnology Anna University, Chennai

Time: 11:30 am - 12:00 noon

Topic: BioPhysics and Crystallography: Tools for Drug Design Resource Person: Dr. M. N. Ponnuswamy

> Professor Center for Advanced Studies in Biophysics and Crystallography University of Madras, Chennai – 600 025

Time: 12:00 pm- 12:30 pm Topic:

Resource Person: Dr. G. Anbalagan Professor & Head Department of Material Science, University of Madras Guindy Campus,Chennai – 600 025

12:30 pm - 1:15 pm - Lunch Break

Time: 1:15 pm - 2:15 pm - Oral Presentation

Time: 02:15 pm- 02:45 pm Topic: Interaction of Extreme Laser Radiation with Radioactive Hazardous Materials

Resource Person: Dr. P. M. Anbarasan Professor Department of Physics, Periyar University Salem - 636 011 2:45 pm - 3:00 pm - Break

Time: 03:00 am - 03:30 am Topic: Development of high quality nonlinear optical (NLO) and ferroelectric single crystals by SR, RSR and ISR methods for device applications Resource Person: Dr. Muthu Senthil Pandiyan

Research Scientist, Department of Physics SSN Research Center, Rajiv Gandhi Salai (OMR) Kalavakkam, Chennai – 603110

Time: 03:30 pm - 04:00 pm Topic: Phytofabricated Zinc Oxide and Iron Oxide Nanoparticles for Anti-Bacterial Drug Delivery Applications

Resource Person: Dr. S. Kumaresan Assistant Professor of Physics A A Govt. Arts College Cheyyar - 604 407

Time: 4:00 pm – 4:30 pm Topic: Structural and Physical Properties of Thin and bulk smart Materials for Energy Storage and conversion Resource Person: Dr. M. V. Reddy

> Hydro – Quebec Inst. Of Research, CEETSE Hydro – Quebec , Montreal, Canada

### PROGRAMME SCHEDULE

#### Day – 2 (05-03-2021)

Time: 09:15 am- 09:45 am Topic: Tribute to Sir CV Raman Resource Person: Dr. S. Gunasekaran Dean, Research & Development St. Peter's Institute of Higher Education and Research St. Peter's University, Avadi Chennai - 600 054

Time: 09:45 am- 10:15 am Topic: Growth and Characterization of NLO crystals grown by solution Resource Person: Dr. S. Kalainathan

Professor, Centre for Nanotechnology Research VIT University, Vellore - 632014

### Time : 10:15 am - 10:45 am

Topic: Physics of emerging materials of rare earth doped glasses for photonic applications Resource Person: Dr. C. K. Jayasankar UGC – BSR Faculty Fellow

Department of Physics Sri Venkateshwara University, Tirupati - 517502

10:45 am – 11:00 am - Break

Time: 11:00 am - 11:30 am Topic: Science of Kabasura Kudineer and its Role in the Prevention and Control of Coronavirus disease (COVID-2019)

#### Resource Person: Dr. C. Sekar

Professor and Head Department of Bioelectronics & Biosensors Alagappa University, Karaikudi - 630003

11:30 am - 12:30 pm - Oral Presentation

12:30 pm - 1:15 pm - Lunch Break

Time: 01:15 pm - 01:45 pm Topic: Synthesis and Characterizations of Cu Doped Co<sub>3</sub>O<sub>4</sub> Nanostructured Thin Films via Thermal Spray Pyrolysis for Glucose Sensor Applications **Resource Person: Dr. Jiban Podder Professor of Physics Bangladesh University of Engineering & Technology** Bangladesh Time: 01:45 pm - 02:15 pm Topic: Properties and applications of Nonlinear Optical Materials - An Introduction **Resource Person: Dr. M. Selvapandiyan** Associate Professor, Department of Physics Periyar University PG Extention Center Dharmapuri - 636 705 Time: 02:15 pm - 02:45 pm Topic: Synthesis, evaluation of molecular structure from torsional scans and study of molecular characteristics using spectroscopic and DFT methods of some thiosemicarbazones and investigation of their anticancer activity Resource Person: Dr. Venkatram Reddy Byru Head, Department of Physics Director (I/c), Central Instrumentation Centre & Addl. Controller of Examinations (Confidential) Kakatiya University, Warangal - 506009, (TS) India 2:45 pm - 3:00 pm - Break

Time: 03:00 pm – 03:30 pm Topic: Metal Oxide nanostructured for photocatalytic applications Resource Person: Dr. Suresh Sagadevan Senior Research Follow Nanotchnology & Catalysis Research Centre University of Malaya, Malaysia

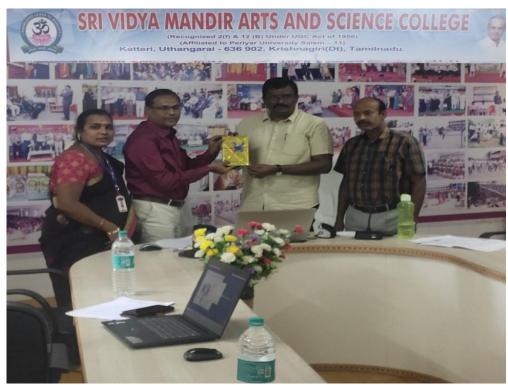
Time: 3:30 pm – 4:15 pm – Valedictory Function

4:00 pm – 4:30 pm	VALEDICTORY FUNCTION	Friday
Invocation		
Welcome Address & Conference Report	: Dr. R. Arivuselvi Assistant Professor and PG & Research Departr SVM Arts & Science Co	nent of Physics
Presidential Address	: Dr. S. Gunasekara Dean (R&D), SPIHER, Founder President, ISP.	Chennai
Valedictory Address	: Thiru. V. Chandr Founder Sri Vidya Mandir Grou Uthangarai, Krishnagin	up of Educational Institution
Felicitation	<ul> <li>Dr. N. Gunasekarat</li> <li>Vice - Principal</li> <li>SVM Arts &amp; Science Co</li> <li>Dr. T. Balasubrama</li> <li>Principal</li> <li>SVM Arts &amp; Science Co</li> </ul>	ollege (Autonomous) nian
	Thiru. R. P. Rajee Secretary SVM Arts & Science Co Thiru. P. Venkatacl Additional Secretary SVM Arts & Science Co	ollege (Autonomous) halam
Feedback		
Vote of Thanks	: Dr. K. M. Prabu Assistant Professor of J SVM Arts & Science Co	
National Anthem		

# Banner – IVCPEMM-2021



# **Photos**



The first soft copy of the proceeding as a CD of IVCPEMM 2021 was released by our Honourable Secretary **Thiru R. P. Rajee** and it was received by our most respected Principal **Dr. T. Balasubramanian** 

### Newspaper cutting of the event – IVCPEMM-2021



கள்ளக்குறிச்சிய கலெக்டர் கிரண் வெளியிட்டுள்ள றிப்பில் கூறியிரு வது, ஆந் திரா, சேரி,கர்நாடகா மாநிலங்கவ பிற வெளிப இருந்து கள்ள வட்டத்திற்கு நாமக்க

மேலும் 🤅 இன்று மு

நாமக்கல் மாவட் தாமக்கல் மாவட் உள்ள 6 சட்டமன்ற இகளுக்கும் பண வாடாவை தடுக்க லாக 36பறக்கும் இன்று முதல் அச பட்டுள்ளது. தாமக்கல் மாவ. உள்ள 6 சட்டமன்ற



தோ்த பார்வை

உருந்தூர்பே

உளுந்தூர்மே ம எக்குறிச்சி உளுந்தூர்வே .ாட்சியர் அ அட்டாடசியர் ஆ கத்தில் தேர்தல் செ 19 ார்வையாளர் பட்டனசெட்டி துய்வு மேற்கெ

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