SUSTAINABLE DEVELOPMENT GOALS | SDG 17

# PARTNERSHIPS FOR THE GOALS

Institutional engagement through cross-sectoral dialogue, collaboration and knowledge exchange

| 17 | PARTNERSHIPS | COLLABORATION | SHARED ACTION |
|---|---|---|---|

## 17.2.2 | Does your university as a body initiate and participate in cross-sectoral dialogue about the SDGs, e.g. conferences involving government/NGOs?

### KLEF's institutional response

Yes. KLEF Deemed to be University actively initiates and participates in cross-sectoral dialogue on the SDGs by organizing and hosting conferences, workshops, and round table discussions that bring together government agencies, NGOs, industry partners, and academic experts. The University regularly conducts SDG-focused events on themes such as sustainable energy, climate action, rural development, digital transformation, and inclusive education. Faculty and research centres collaborate with government departments and regional NGOs to share research insights, discuss challenges, and develop joint solutions aligned with SDG targets. KL University also participates in external policy forums, stakeholder consultations, and regional development dialogues, ensuring continuous engagement with multi-sector partners. Through these platforms, the University strengthens partnerships, promotes knowledge exchange, and supports collective efforts toward achieving the SDGs.

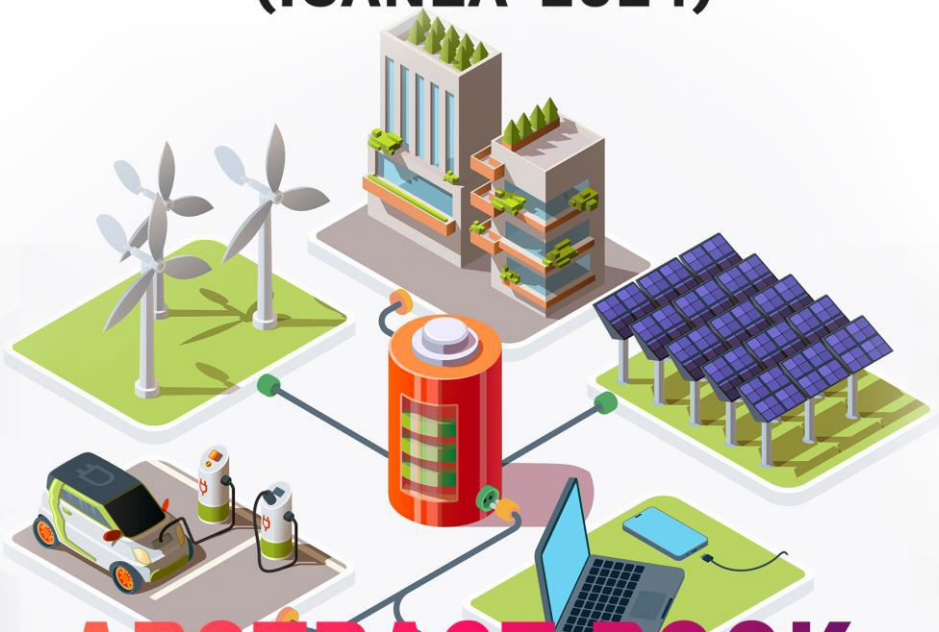
### Major conferences and their SDG contributions

| CONFERENCE / INITIATIVE | RELEVANT SDGs |
|---|---|
| International Conference on Advances in Sustainable Construction Materials | 9, 11, 12 |
| International Conference on GDP ≠ Happiness: Rethinking Development through Citizens' Wellbeing | 3, 5, 8, 10, 11, 17 |
| International Conference on Emerging Trends in Smart Grid, Renewable Energy and Electric Vehicle Technologies | 7, 9, 13 |
| International Conference on Advanced Nanomaterials for Energy Storage Applications | 7, 9 |
| International Conference on Current Sustainable Agriculture, Nutritional and Pharmaceutical Interventions | 2, 3, 12 |
| DST-SERB Sponsored Conferences on Advanced Functional Materials and Photonics | 7, 9, 17 |
| International Conference on Corporate Social Responsibility Towards Sustainable Development in India | 8, 12, 17 |
| International Conference on Sustainable Management in the Age of AI and Emerging Technologies | 8, 9, 12 |
| International Conference on Emerging ThermoNanoAI for Sustainable Future Energy Devices | 7, 9, 13 |

**EVIDENCE PORTFOLIO • Conference materials, proceedings, programmes, photographs and reports follow.**

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)



# ABSTRACT BOOK

ISBN-9789362853837

Organized by

**Department Of Physics**

**KONERU LAKSHMAIAH EDUCATION FOUNDATION**

(Deemed to be University)

Green Fields, Vaddeswaram, Guntur, Andhra Pradesh-522302

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# Abstract Book of 5 th International Conference on Advanced Nanomaterials for Energy Storage Applications (ICANEA-2024)

**9th–12thDecember2024**

## Edited by



**Dr. K. Swapna – HOD**
**Conference Chairman - General Chair**



**Dr. S. Shanmugan**
**Convener Program Chair**

**Published by**

**KONERU LAKSHMAIAH EDUCATIONAL FOUNDATION**

**Deemed to be University Accredited by NAAC with A++ Grade**

**Green Fields, Vaddeswaram, Guntur dist, Vijayawada, Andhra Pradesh, 522502.**

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

## Co Convenors



Dr.G.Sunita Sundari



Dr.M.Gnana Kiran



Dr.A.Venkateswara Rao

ISBN-9789362853837

**KONERU LAKSHMAIAH EDUCATION FOUNDATION**

The Koneru Lakshmaiah Charity was established as a trust in the year 1980 with its official address is at Museum Road, Governerpet, Guntur District, Andhra Pradesh, India. It was started as KL College of Engineering in the Academic year 1980-81. KLEF was established in 1980-81, as KL College of Engineering, which was upgraded to KL College of Engineering Autonomous in 2006 by UGC and was declared as a Deemed to be University in 2009 by UGC, MHRD Govt. of India.NAAC assessed the University and accredited for a period of five years from 2018 to 2023 with CGPA of 3.57 with A++grade. In 2019 UGC, MHRD declared this intuition as Category 1 status. Research has taken a quantum step towards quality improvement through publishing in Scopus / SCI Indexed journals building an h-Index of 52 at the moment. KLEF has established an ecosystem to promote innovations including a center for Innovation, Incubation and Entrepreneurship development leading to start-ups in different disciplines. The university was also ranked 22 under NIRF 2024.

**About the Department of Physics**

The Department of Physics was established in the year 1980. The department offers M.Sc. Physics and NanoScience and Technology, and Ph.D. programs. The department is functioning with 12 Doctoral Faculty Members. Research work in the department is being carried out in various fields like

Material Science, Solar Energy, Nanotechnology, Space & Atmospheric Science, Theoretical and Computational Physics and Ultrasonics. The department had 3 fully equipped research labs worth Rs. 3. crore. The department is recognized as a DST-FIST Level 1 department with a grant of Rs.107 lakhs by the Department of Science and Technology, Govt. of India, New Delhi. The department also has a good number of sponsored research projects worth Rs. 3 crores under the DST woman scientist scheme, young scientist scheme, Early career research award and SERB-Start up research grant. Faculty members of our department have published more than 300 research publications in highly reputed international journals with high impact factor I am pleased to pen a few words to share the joy with the Department of Physics, Koneru Lakshmaiah Education Foundation (Deemed To be University) as they are organizing 5$^{th}$ International Conference on Advanced Nanomaterials for Energy Storage Applications (ICANEA2024)

.

As I understand it is a humble step towards a noble goal, to be an acknowledged global forum for researchers working in materials science. This may facilitate researchers coming together with their ever-inquistive minds, bring together their vast experiences and share their expertise. This is to be appreciated and acknowledged because the matter of science is collaboration for the betterment of this universe and everyone and everything in it. Creation of a better world and its progress require teamwork, partnerships and collaboration. Isaac Newton gladly accredited the assistance he received and said “If I have seen further, it is by standing on the shoulders of giants.” “Coming together is a beginning, staying together is progress, and working together is success,” says Henry Ford. Let us come together, think together and work together. Hope and pray that the small seed sown now may bloom and our dreams blossom.

From what I gather, it's a modest first step toward a commendable objective: becoming a recognized worldwide platform for materials science experts. This could make it easier for researchers to pool their wide experiences, exchange their expertise, and get together with open minds. This is something that should be recognized and valued because science is about working

together to improve the universe and all living things inside it. Progress toward a better society requires cooperation, partnerships, and teamwork. With pleasure, Einstein acknowledged that Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.

5th International Conference on Advanced Nanomaterials for Energy Storage Applications (ICANEA2024) has been organized by Department of Physics, Koneru Lakshmaiah Education Foundation (Deemed To be University) a prestigious institution in Andhra Pradesh. There has been overwhelming response to the conference from all over the world. ICANEA2024 offers a platform to the researchers and scientists for exchanging the latest research outputs and sharing the most modern research methods as well. Over the course of the conference, internationally – renowned speakers will enlighten the researchers with their wisdom and experience related to the contemporary challenges in the field of material science. ICANEA2024 intends to foster avenues to collaborative interdisciplinary research in materials science and it s applications. The conference has brought together number of experts, scientists and professionals to share not only their knowledge, but also their findings in the development of material science, properties and applications. I would like to congratulate the organizers, the Research and Post graduate Department of Physics and I wish great success to the event.

Advances in materials research are key to the rapid technological advances that the world has endured over the last two centuries. Our knowledge and understanding of materials is being updated every moment through the work of thousands of materials scientists and engineers in academia, research organizations and industry.

The scope of materials research is very broad in which can perhaps categorise it based on state, properties, applications and form or type. In this conference we aim to bring together researchers to present and discuss latest research and innovations in selected applications areas of materials such as Renewable energy conversion technology, Sustainable materials for energy efficiency, Hybrid energy storage and thin film technologies, Energy policy and Climate Impacts on Energy,Environment Sustainable materials for fuel cells, Sustainable materials for supercapacitors.

Over the last two years, our world has experienced difficulties of a pandemic which our generation never imagined. This has led to new challenges for the world in terms of sustainability, energy, the environment, and healthcare. Materials play an important role in current and future

needs for sustainable development. It has also changed the way we meet, interact and share our thoughts and opinions.

Therefore, this conference is organized as a webinar to provide an opportunity for young researchers and graduate students to listen to leading scientists in the form of a number of invited and plenary talks. It will also provide for young researchers to present their research as oral and poster presentations. We are determined to provide a great opportunity for participants and presenters to share the latest research in their respective fields of materials science and engineering. We are thankful to all plenary and invited speakers for accepting our invitation to present at this conference. As chairs we take this opportunity to thank all those who are serving as members of different committees, conference proceedings editorial board and in particular the conference convenor and organizers for their efforts to make ICANEA2024 a success.

# About the Conference

Energy is a part of science in which materials and Technology plays an important role as Advanced Nanomaterials to meet the needs of the future environment. The increasing ecological problems such as energy storage, generation and conservation are the major drivers of Nanomaterials and Technology. There is a need of developing sustainable energy production and consumption to achieve the socio-economic and environmental targets. The major significance of Energy sources helps in strengthening the research and advancement of materials towards sustainable development and relevant applications. The universal emphasis on energy is to develop materials for energy generation, low energy processing, energy conservation and conversion to meet the increasing energy demand of the country. Advanced Functional Materials provides a wide range of applications that discourse the current innovations and novel approaches for the expansion of energy materials to meet global desires. ICANEA2024 covers major interdisciplinary subjects such as Nanomaterials and devices, Fuel cells, Organic and inorganic Solar Energy, Batteries

storage devices, Glass Science and Technology, Photocatalytic methods, Green energy, Photonic devices and Environmental sustainability.

We assure that, this conference will provide a platform to Academicians, Researchers, Industrialists, Scholars and students to interact with distinguished and eminent Scientists all around the globe of diverse fields. The conference also aimed to understand the latest developments in the field of advanced functional materials through hybrid mode. It also aims at kindling interest in the minds of young students to pursue research as higher career. It is anticipated to widen the scope of interdisciplinary research among academicians and researchers.

Interested researchers are invited to submit their original research contributions in the following themes related to the primary thematic research areas of ICANEA2024 for Oral and Poster presentations. We also provide space for Institutes and companies to present their innovative products, services, and research results.

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# Organizing Committee Members



# Full Time Research Scholars



INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# Chief Guests

## Chief Guests

Chair



**Padma Jyoti Dr G S Ayyappan**
Senior Principal Scientist, Professor – AcSIR,
CSIR-CSIO Chennai, Energy Management Technologies
(Chennai Centre), Tamil Nadu

**Education:**
Doctor of Philosophy (PhD) at Academia of Scientific & Innovative Research, CECRI, Karaikudi.

**Experience:**
Worked as Juniro Technical Assistant at CSIR-Central Scientific Instruments Organisation Worked as Scientist at Research and Development on Energy Management Instrumentation & Energy Efficiency Systems, Chennai. Sr. Scientist at Research and Development on Energy Management Instrumentation & Energy Efficiency Systems, Chennai. Working as a Senior Principal Scientist & Professor – AcSIR, CSIR-CSIO Chennai, Energy Management Technologies (Chennai Centre), Tamil Nadu.

## Chief Guests

Chair



**Dr. D. Pamu**
Professor, Department of Physics, Indian Institute of Technology, Guwahati, (IIT Guwahati)

**Education:**
Doctor of Philosophy (PhD) at University of Hyderabad, Hyderabad, India.

**Experience:**
Working as Professor in Department of Physics at Indian Insitute of Technology, Guwahati (IIT Guwahati).

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# LIST OF SPEAKERS PRESENTED

## International Speakers



### Dr. K. Chinnaiah

Post-doctoral fellow, Arieal University, Isreal

**Education**

Post-doctoral fellow, Arieal University, Isreal

**Experience:**

Working as Post-doctoral fellow at Arieal University, Isreal.



### Dr. Prasad Jaladi

Social Entrepreneur, Foundation and Chief Facilitator of Suraksha based in Austin, Texas, USA

**Education**

Master's degree in organic chemistry from Bhavnagar University Gujarat, India.

**Experience:**

Prasad has worked in pharmaceutical industry, managed QA, R&D, pilot, commercial manufacturing and consulting for the manufacturing of bulk active pharmaceutical ingredients. He obtained professional training in ERP and CRM. Prasad managed IT consulting and bio-IT businesses from Silicon Valley and Texas. He has executive experience in life sciences and IT, including emerging technology.



### Dr. Mohammad Nasir

Research Fellow, Department of Physics, Dankook University, South Korea

**Education**

Doctor of Philosophy (PhD) at Indian Institute of Technology, Indore (IIT Indore).

**Experience:**

Working as a Post-doctoral researcher at Dankook University, South Korea.



### Dr. Mohammed Al-Buraihi

Assistant Professor, Department of Physics, Sakarya University, Sakarya, Turkey.

**Education**

Doctor of Philosophy

**Experience:**

Working as Assistant Professor at Dpeartment of Physics in Sakarya University, Sakarya, Turkey.



### Dr. Karthik Kannan

Professor, ACSDRI, Adelaide SA, 5000, Australia & Department of Mechanical Engineering, Advanced Institute of Manufacturing with High-Tech Innovations, National Chung Cheng University, Chia-Yi, 621301, Taiwan.

**Education**

Doctor of Philosophy (PhD), Physics at Bharathidasan University, Thiruchirapally

**Experience:**

Worked as Postdoctoral Researcher at Kumoh National Institute of Technology, South Korea.Working as Postdoctoral Scientist at Ariel University, Isreal.

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# National Speakers



## Dr. D. Pamu

Professor, Department of Physics, Indian Institute of Technology, Guwahati, (IIT Guwahati)

### Education

Doctor of Philosophy (PhD) at University of Hyderabad, Hyderabad, India.

### Experience:

Working as Professor in Department of Physics at Indian Insitute of Technology, Guwahati (IIT Guwahati).Working as Assistant Professor at Indian Institute of Technology, Jammu, Jammu & Kashmir, India.



## Dr. Suryanarayana Jammalakada

Professor, Indian Institute of Technology, Hyderabad, (IIT Hyderabad)

### Education

Doctor of Philosophy (PhD) at Indian Institute of Technology Madras (IIT Madras), Chennai

### Experience:

Working as a Professor at Indian Institute of Technology, Hyderabad (IIT Hyderabad).



## Dr. Arunkumar Jayakumar

Associate Professor,Department of EEE, St. Peter Institute of Higher Education and Research, Avadi,Chennai

### Education

Obtained M.S. Energy engineering at Anna University, Chennai.
Doctor of Philosophy at Auckland University of Technology, New Zealand.

### Experience:

Worked as Research Scientist at GasHub Technology, Pte Ltd.
Worked as Research Scientist at ZECA POWERS.
Worked as Associate Professor at Chennai Institute of Technology.
Worked as Research Fellow at Auckland University of Technology, New Zealand.
Founder of 3D-4S Systems. Working as Associate Professor at St.Peter Institute of Higher Education and Research, Chennai.



## Dr. Ravindra Kumar Jha

Assistant Professor, Depratment of EEE,
Indian Institute of Technology, Guwahati, (IIT Guwahati)

### Education

Doctor of Philosophy (PhD) at Indian Institute of Technology, Kharagpur

### Experience:

Worked as Trainee at National Physical Laboratory, New Delhi.
Scientist, CSIR-Ministry of Science & Technology, Govt. of India.
Working as Assistant Professor, at Indian Institute of Technology, Guwahati, India.



## Dr. P. Selvaraju

Professor, Department of Computer Science and Engineering, SIMATS, Chennai, Tamil Nadu.

### Education

Doctor of Philosophy (PhD) at Anna University

### Experience:

Worked as Seniro Lecturer at Jerusalem Engineering College,
Worked as Professor at SSN College of Engineering, Chennai,
Worked as Professor at Vel Tech Multi Tech Dr. Rangarajan Dr. Sakuntala Engineering College,
Working as Professor at SIMATS, Chennai, Tamil Nadu

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# National Speakers



## Dr. V. Chithambaram

Professor, Dean Research, Department of Physics, Dhanalakshmi College of Engineering, Manimangalam, Chennai, Tamil Nadu.

### Education

Obtained Master's degree at Vellore Institute of Technology, Vellore, India.
Doctor of Philosophy (PhD) at AMET University, Chennai.

### Experience:

Worked as Associate Professor at Sri Krishna Engineering College.
Worked as Professor, Head/R&D at PERI Institute of Technology.
Working as Professor at Karpaga Vinayaga College of Engineering and Technology, Chennai.



## Dr. D. Amaranatha Reddy

Associate Professor, Department of Physics, IIITDM, Kurnool

### Education

Doctor of Philosophy (PhD) at Sri Venkateswara University, Tripathi, Andhra Pradesh, India.

### Experience:

Worked as Post-doctoral Researcher at Hankuk University of foreign studies, Yongin, South Korea,
Worked as Post-doctoral fellow at Pusan National University, South Korea,
Worked as Researcher at University-Industry Foundation, Yonsei University, South Korea,
Worked as Inspire faculty at IIITDM, Kurnool, Andhra Pradesh, India,



## Dr. M. Mamata Kumari

Assistant Professor, Department of Physics, Yogi Vemana University, Kadapa, Andhra Pradesh.

### Education

Doctor of Philosophy (PhD) in Department of Mtallurgical and Materials Engineering, Indian Institute of Technology Madras.

### Experience:

Worked as Assistant Professor in Department of Materials Science and Nanotechnology, Yogi Vemana University, Kadapa. Working as Associate Professor in Department of Materials Science and Nanotechnology, Yogi Vemana University, Kadapa



## Dr. B . Kishore Babu

Associate Professor, Department of Physics,
Andhra University, Andhra Pradesh.

### Education

Doctor of Philosophy (PhD) at University of Hyderabad

### Experience:

Worked as Assistant Professor in Department of Engineering Chemistry, Andhra University.
Working as Associate Professor in Department of Engineering Chemistry, Andhra University.



## Dr. D. Kalyani

Professor and Head, Department of Biochemistry, Adikavi Nannaya University, Rajamundry ,Andhra Pradesh.

### Education

Doctor of Philosophy (PhD) at Adikavi Nannaya University.

### Experience:

Working as Professor at Adikavi Nannaya University, Rajamundry, Andhra Pradesh

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# Internal Speakers



## Dr. Mahamuda Shaik

Associate Professor, Depratment of Physics, Koneru Lakshmaiah Education Foundation (Deemed to be University), Guntur, Andhra Pradesh, India

### Education

Doctor of Philosophy (PhD) at Koneru Lakshmaiah Education Foundation (Deemed to be University), Guntur, Andhra Pradesh, India

### Experience:

Working as Associate Professor at Depratment of Physics, Koneru Lakshmaiah Education Foundation (Deemed to be University), Guntur, Andhra Pradesh, India



## Dr. M. Venkateswarlu

Assistant Professor, Depratment of Physics, Koneru Lakshmaiah Education Foundation (Deemed to be University), Guntur, Andhra Pradesh, India

### Education

Doctor of Philosophy (PhD) at Koneru Lakshmaiah Education Foundation (Deemed to be University), Guntur, Andhra Pradesh, India

### Experience:

Working as Assistant Professor at Depratment of Physics, Koneru Lakshmaiah Education Foundation (Deemed to be University), Guntur, Andhra Pradesh, India

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# Oral Presentation Chair

## Day-1 (19-12-2024) 4.30-5.30 PM

### Session-1 Renewable energy conversion technology

**Chair**

Dr G. S. Ayyappan
Dr. D. Pamu
Dr. V. Chithambaram

**Co-Chair**

Dr. K. Swapna
Dr. N.S.M.P. Latha Devi
Dr. S. Shanmugan, .

### Session-2 Sustainable materials for energy efficiency

**Chair**

Dr. D. Kalyani
Dr. P. Selvaraju
Dr. K. Chinnaiah

**Co-Chair**

Dr. Sk. Mahamuda,
Dr. A. Venkateswara Rao

## Day-2 (20-12-2024) 3.00-5.30 PM

### Session-3 Hybrid energy storage and thin film technologies

**Chair**

Dr. Ravindra Kumar Jha
Dr. Arunkumar Jayakumar

**Co-Chair**

Dr. K. Raghavendra Kumar,
Dr. Hushund Jahan

### Session-4 Energy policy and Climate Impacts on Energy

**Chair**

Dr. M. Mamata Kumari
Dr. P. Selvaraj

**Co-Chair**

Dr. M.V.V.K. Srinivas Prasad,
Dr. Sonali Biswas
Dr. N.S.M.P. Latha Devi

## Day-3 (21-12-2024) 3.00-5.30 PM

### Session-5 Environment Sustainable materials for fuel cells

**Chair**

Dr. D. Amaranatha Reddy
Dr. Suryanarayana Jammalamadaka

**Co-Chair**

Dr. M. Venkateswarlu,
Dr. Shaik Babu

### Session-6 Sustainable materials for supercapacitors

**Chair**

Dr. B. Kishore Babu
Dr. Arunkumar Jayakumar

**Co-Chair**

Dr. M. Gnana Kiran,
Dr. G. Sunita Sundari

## International Advisory Committee

**Dr. Merryl Arokiasamy,**
Manufacturing Lead, Front End,
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Professor in Physics, Southern Federal University, Russia.

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Professor in Mechanical Engineering, Tanta University, Egypt.

**Dr. Kitmo,**
Professor in Renewable Energy, University of Maroua, Cameroon,

## National Advisory Committee

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Professor in Physics,
Delhi Technological University, Delhi.

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Professor in Physics, IIT Madras,
Tamil Nadu

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Karpagam Academy of Higher Education,
Tamil Nadu

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Lovely Professional University, Punjab.

**Dr. Laxmikant Jathar,**
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Army Institute of Technology, Maharashtra.

**Dr. Sumit Kumar,**
Division of Research & Development,
Lovely Professional University, Punjab

**Dr. Venkata Naresh Mandhala,**
Professor in CSE,
Koneru Lakshmaiah Education Foundation,
Andhra Pradesh.

**Dr. M. Nagrajan,**
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Government Arts and Science College,
Tamil Nadu.

**Dr. S. Ravichandran,**
Professor in Chemistry,
Lovely Professional University,
Phagwara, Punjab.

**Dr. V. Chithambaram,**
Professor in Physics, KVCET,
Tamil Nadu.

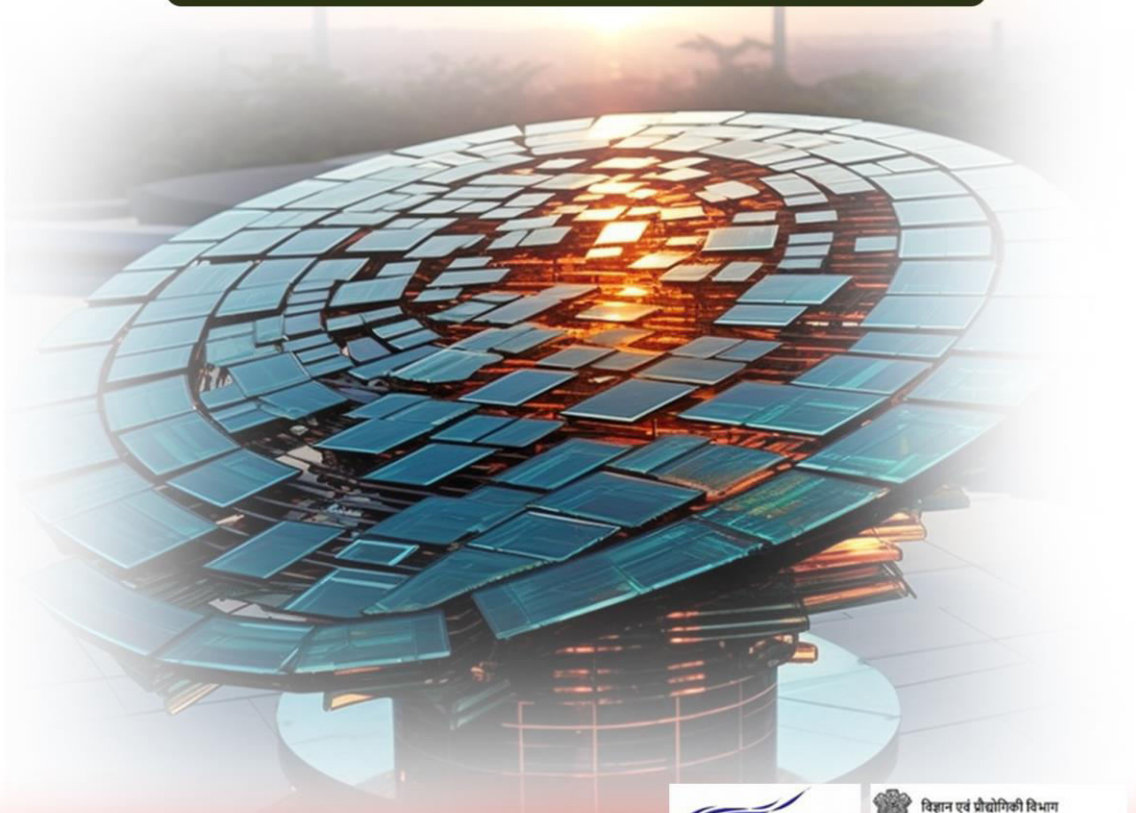
**Dr. P. Selvaraju,**
Dean R&D and Professor in Mathematics,
RIT, Tamil Nadu.

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# International Conference on Advanced Nanomaterials for Energy Storage Applications (ICANEA-2024)

## 19th – 21st December 2024

# PROGRAMME SCHEDULE



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**Department Of Physics**

**KONERU LAKSHMAIAH EDUCATION FOUNDATION**

**(Deemed to be University)**

**Green Fields, Vaddeswaram, Guntur, Andhra Pradesh-522302**

(DEEMED TO BE UNIVERSITY)

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# INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

(DEEMED TO BE UNIVERSITY)

KONERULAKSHMAIAHEDUCATIONALFOUNDATION

DeemedtobeUniversity

Accredited by NAAC with A++ Grade GreenField,

Vaddeswaram,AndhraPradesh522502.

Conference Website Link: https://www.kluniversity.in/physics/icanea-2024/

31 DAYS

## International Conference on Advanced Nanomaterials for Energy Storage Applications (ICANEA-2024)

**19th–21st December 2024**

Organized by
Department of Physics,
KLEF–VZA.

Conference Website Link: https://www.kluniversity.in/physics/icanea-2024/

India Time is 9.30 AM to 5.30 PM

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# INAUGURATION - ICANEA-2024

| TIME | NAME | TALK |
|---|---|---|
| 9.45AM–9.50AM | DR. M.V.V.K. SRINIVAS PRASAD | WELCOME ADDRESS & PRAYER SONG |

## LAMP LIGHTING CEREMONY

| | | |
|---|---|---|
| 9.50AM–9.55AM | Dr. K. Swapna (HOD) | Introduction for Department of physics |
| 9.55AM– 10.05AM | Dr.S.Shanmugan(Convener) | Themes Of Conference |
| 10.05AM– 10.10AM | Dr. G. Sunita Sundari | Introduction about ICANEA 2024 International Keynote Speakers |
| 10.10AM– 10.15AM | Dr. M. Gnana Kiran | Introduction about ICANEA 2024 national Keynote Speakers |
| 10.15AM-10.20AM | Dr. Shaik Mahamuda (RPAC) | R&DThemes |
| 10.20 AM-10.35AM | KLEF-CHIEFPATRON | VC, Pro VC, Registrar, FED Director, Vice Principal of FED, Principal MHS, Dean R&D, Director MHS, IRD HOD, etc., |
| 10.35 AM -10.50 AM | Committee Members<br>Dr. V. Vivekananthan<br>Dr. S. Arunmetha<br>Dr. Hushnud Jahan<br>Dr. Sonali Biswas<br>Dr. N. S. M. P. Latha Devi<br>Dr. M Venkateswarlu<br>Dr. Shaik Babu<br>Dr. K. Raghavandra Kumar | <br>PURSE,<br>Media and Publicity Chair<br>Registration chair<br>Hospitality chair<br>Arrangement Chair |
| 10.50 AM -11.15 AM | Address by Chief Guest<br>Padma Jyoti Dr G. S. Ayyappan | Senior Principal Scientist,Professor, AcSIR, CSIR-CSIO CHENNAI, Energy Management Technologies (Chennai Centre) Tamil Nadu. |
| 11.15 AM – 11.30 AM | Address by Chief Guest<br>Dr. D. Pamu | Professor,<br>Indian Institute of Technology Guwahati, India |
| 11.30 AM – 11.35AM | Dr. A. Venkateswara Rao (Co-Convener) | Vote of Thanks |

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# INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

ICANEA-2024

## DAY-1
## (19-12-2024)

### Incharge Dr.G.Sunita Sundari

Introduction Dr. M Venkateswarlu  Vote of thanks: Mr. V. Parthiban

11.50 AM - 12:30 AM — **Dr. D. Pamu**
Professor,
Indian Institute of Technology Guwahati, India

(12:30 PM TO 1:30 PM) LUNCH BREAK

Introduction Dr. Mahamuda Shaik  Vote of thanks: Ms. G. Dedeepya

1:30 PM - 2:00 PM — **Dr. K. Chinnaiah**
Post-Doctoral Fellow,
Department of Physics Ariel University, Israel.

Introduction Dr. Sonali Biswas  Vote of thanks: Ms. D. Naga Prasuna

2.10 PM – 2.40 PM — **Dr. P. Selvaraju**
Professor, Department of Computer Science and Engineering, SIMATS, Chennai, Tamil Nadu.

Introduction Dr. A. Venkateswara Rao  Vote of thanks: Mr. M. Mahivardhan

2.50 PM – 3.30 PM — **Dr. V. Chithambaram**
Dean Research, Department of Physics,
Dhanalakshmi College of Engineering,
Manimangalam, Chennai, Tamil Nadu.

Introduction Dr. Shaik Babu  Vote of thanks: : Ms. A. Sangeetha

3:40 PM - 4:30 PM — **Dr. D. Kalyani**
Professor and Head, Department of Biochemistry,
Adikavi Nannaya University, Rajamundry.
Andhrapradesh.

PAPER PRESENTATIONS 4.30 PM – 6.00 PM
Incharge Dr.M.V.V.K.Srinivas Prasad

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# INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

## DAY-2
## (20-12-2024)

**Incharge -Dr.M.Gnanakiran, Dr.ShaikBabu**

Introduction Dr. M.V.V.K. S. Prasad; Vote of thanks: Ms. G. Dedeepya

9. 30 AM -10.15AM — **Dr. Arunkumar Jayakumar**
Associate Professor, Department of EEE,
St. Peter's Institute of Higher Education and Research, Avadi, Chennai.

Introduction Dr. M Venkateswarlu Vote of thanks: Mr. M. Mahivardhan

10:15AM -11.00 PM — **Dr. Ravindra Kumar Jha**
Assistant Professor, Department of EEE,
Indian Institute of Technology Guwahati, India.

BREAK (11:15 AM to 11:30 AM)

Introduction Dr. K. Swapna Vote of thanks: Ms. T. Lakshmi

11.30 PM – 12.15 PM — **Dr. M. Mamata Kumari**
Assistant Professor, Department of Physics,
Yogi Vemana University, Kadapa, Andhra Pradesh.

Introduction Dr. N.S.M.P. Latha Devi ,Dr. Hushnud Jahan Vote of thanks: Mr. D. Naga Prasuna

12.15 PM – 1.00 PM — **Dr. Mahamuda Shaik**
Associate Professor,
Department of Physic, KLEF.

(1.00 PM TO 1.45 PM) LUNCH BREAK

Introduction Dr. K. Raghavendra Kumar Vote of thanks: : Mr. Bharath Surya

1:45 PM - 2:15 PM — **Dr. Prasad Jaladi**
Social Entrepreneur,
Foundation and Chief Facilitator of Suraksha based in Austin, Texas, USA.

Introduction Dr. G. Sunita Sundari Vote of thanks: Mr. P. Parthiban

2:15 PM – 3.00 PM — **Dr. Mohammad Nasir**
Research Fellow, Department of Physics,
Dankook University, South Korea.

PAPER PRESENTATIONS 3.00 PM –6.00 PM
In charge – Dr. M. Venkateswarlu, Dr. Sonali Biswas and Dr. Hushnud Jahan

# INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)



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## Valedictory Ceremony:

**In charge – Dr. K. Raghavendra Kumar**

### Conclude :

- **Dr.K.Swapna,(HOD)**
  (Few words about – ICANEA - 2024)
- **Dr. M. Gnana Kiran, (Co-Convener)**
  (Few words about feature research ideas - ICANEA - 2024)
- **Dr. G. Sunita Sundari, (Co-Convener)**
  (Highlights – ICANEA - 2024)
- **Chief Guest Address**
  (Speakers – ICANEA - 2024)
- **DST PURSE & ICANEA Organizing Committee Members**
  (Highlights of Delivery – ICANEA - 2024).
- **Dr. S Shanmugan, (Convener)**
  (Future themes of ICANEA - 2024)
- **Dr. A. Venkateswara Rao, (Co-Convener)**
  (Vote of thanks for ICANEA - 2024).

**Head&Department of Physics,**

**Dr.K.Swapna**

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# కెఎల్ యులో ముగిసిన భౌతిక శాస్త్రం అంతర్జాతీయ సదస్సు

**సూర్య ప్రతినిధి మంగళగిరి:** కెఎల్ డీమ్డ్ యూనివర్సిటీలో భౌతిక శాస్త్ర విభాగం అధ్వర్యంలో నిర్వహించిన అంతర్జాతీయ సదస్సు సోమవారం ఘనంగా ముగిసింది. ఈ సదస్సుకు ప్రపంచవ్యాప్తంగా ఉన్న ప్రముఖ భౌతిక శాస్త్రవేత్తలు, పరిశోధకులు, పరిశ్రమ నిపుణులు పెద్ద సంఖ్యలో పాల్గొన్నారు. ఈ సదస్సులో నానో మెటీరియల్స్‌లో తాజా పరిణామాలను మరియు ఇంధన నిల్వ వ్యవస్థల భవిష్యత్తును రూపొందించడంలో వాటి కీలక పాత్రను ప్రదర్శించినట్లు భౌతిక శాస్త్ర విభాగాధిపతి డాక్టర్ కె.స్వప్న తెలిపారు. కన్వీనర్ డాక్టర్ ఎస్.షణముగన్ మాట్లాడుతూ అత్యాధునిక పరిశోధనలు, అభివృద్ధి చెందుతున్న పోకడలు, ఇంధన నిల్వలో సాంకేతిక ఆవిష్కరణలపై చర్చలు, నెట్‌వర్కింగ్ తదితర విలువైన అంశాలను విద్యార్థులు తెలుసుకునేందుకు ఈ అంతర్జాతీయ సదస్సు వేదికగా ఉపయోగపడిందని అన్నారు. ఈ కార్యక్రమంలో వైస్ చాన్సలర్ డాక్టర్ జి.పార్థసారథివర్మ, ప్రో చాన్సలర్ డాక్టర్ కెవిస్.జగన్నాథరావు, ప్రో వైస్ చాన్సలర్లు డాక్టర్ ఎవిఎస్. ప్రసాద్, డాక్టర్ ఎన్.వెంకట్ రామ్, కెఎల్ కాలేజ్ ఆఫ్ సైన్సెస్



ప్రిన్సిపల్ డాక్టర్ కె.సుబ్రమణ్యం, ఎఫ్ ఇడి ప్రిన్సిపల్ డాక్టర్ కృష్ణారెడ్డి, ఆర్ అండ్ డి డీన్ బిటిపి.మాధవ్, భౌతిక శాస్త్ర విభాగాధిపతి డాక్టర్ కె.స్వప్న, కన్వీనర్ డాక్టర్ ఎస్.షణ్ముగన్ తదితరులు పాల్గొన్నారు.

# సాక్షి

# కేఎల్‌యూలో ముగిసిన అంతర్జాతీయ సదస్సు



భౌతిక శాస్త్ర అంతర్జాతీయ సదస్సులో పాల్గొన్న శాస్త్రవేత్తలు, పరిశోధకులు డాక్టర్ బి.వి. అప్పారావు

**తాడేపల్లి రూరల్:** కేఎల్ యూనివర్సిటీలో భౌతిక శాస్త్ర విభాగం ఆధ్వర్యంలో నిర్వహించిన అంతర్జాతీయ సదస్సు సోమవారం ముగిసింది. ఈ సందర్భంగా భౌతిక శాస్త్ర విభాగాధిపతి కె. స్వప్న మాట్లాడుతూ ఈ సదస్సులో ప్రపంచవ్యాప్తంగా వున్న ప్రముఖ భౌతిక శాస్త్రవేత్తలు, పరిశోధకులు, పరిశ్రమ నిపుణులు పెద్ద సంఖ్యలో పాల్గొన్నారన్నారు. నానో మెటీరియల్స్‌లో తాజా పరిణామాలు, ఇంధన నిల్వ వ్యవస్థల భవిష్యత్తును రూపొందించడంలో వాటి కీలక పాత్రను ప్రదర్శించారని తెలిపారు. కన్వీనర్ ఎస్. షణ్ముగన్ మాట్లాడుతూ అత్యాధునిక పరిశోధనలు, అభివృద్ధి చెందుతున్న పోకడలు, ఇంధన నిల్వలో సాంకేతిక ఆవిష్కరణలపై చర్చలు, నెట్ వర్కింగ్ తదితర విలువైన అంశాలను విద్యార్థులు తెలుసుకునేందుకు ఈ అంతర్జాతీయ సదస్సు వేదికగా నిలిచిందని అన్నారు. కార్యక్రమంలో యూనివర్సిటీ వైస్ చాన్సలర్ జి. పార్థసారథివర్మ, ప్రో చాన్సలర్ కె.ఎస్. జగన్నాధరావు, ప్రో వైస్ చాన్సలర్లు ఎ.వి.ఎస్. ప్రసాద్, ఎన్. వెంకటరామ్, కేఎల్ కాలేజ్ ఆఫ్ సైన్సెస్ ప్రిన్సిపాల్ కె. సుబ్రహ్మణ్యం,ఎఫ్ఈడీ ప్రిన్సిపల్ కృష్ణారెడ్డి, ఆర్ అండ్ డీ డీన్ బి.టి.పి. మాధవ్ పాల్గొన్నారు.

**సున్నాను కనిపెట్టింది భారతీయులే..**

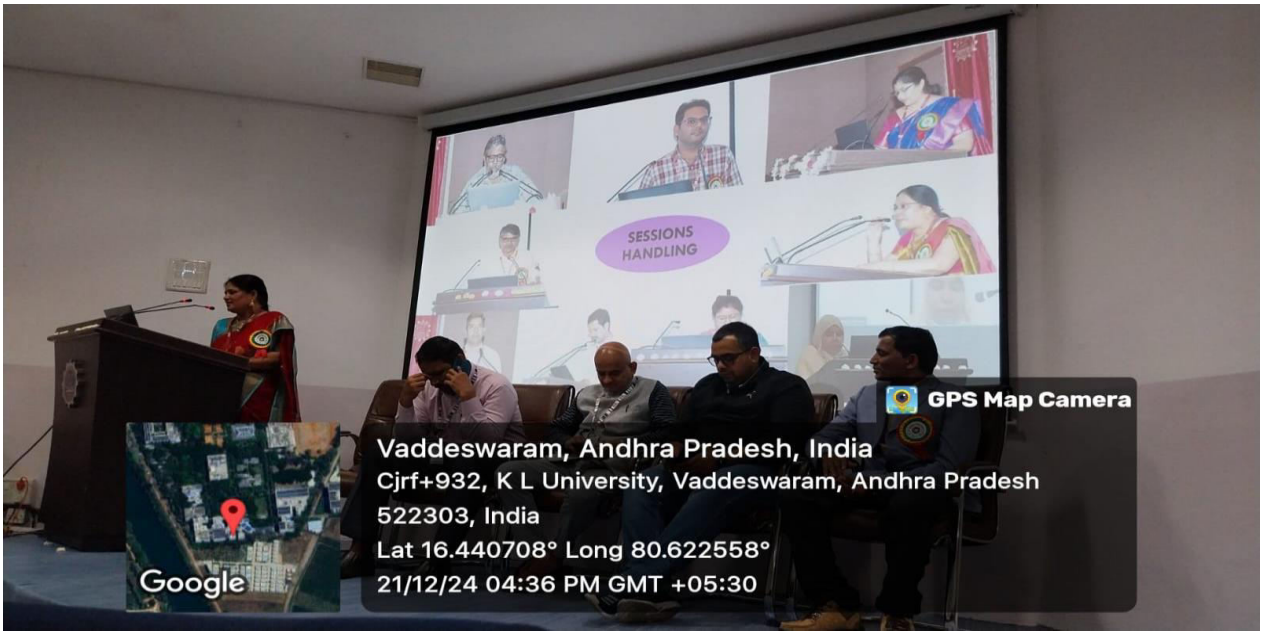
**తాడేపల్లి రూరల్:** సున్నాను కనిపెట్టి భారతీయులు ప్రపంచ గణిత శాస్త్రానికి అద్భుత కానుక ఇచ్చారని కుఎల్‌యూ గణిత విభాగాధిపతి బి.వి. అప్పారావు అన్నారు. సోమవారం కేఎల్



రామానుజన్ చిత్రపటానికి నివాళులర్పిస్తున్న గణిత విభాగాధిపతి అప్పారావు

యూనివర్సిటీలో గణిత మేధావి శ్రీనివాస రామానుజన్ జయంతి వేడుకలను ఘనంగా నిర్వహించారు. ముందుగా శ్రీనివాస రామానుజన్ చిత్రపటానికి పూలమాల వేసి నివాళులర్పించారు. ఈ సందర్భంగా బి.వి. అప్పారావు మాట్లాడుతూ గణిత శాస్త్రానికి దిశానిర్దేశం చేసిన శాస్త్రవత్తేలు మన దేశంలో చాలామంది ఉన్నారన్నారు. వారిలో ప్రథమంగా ఆర్యభట్ట, మహావీర, బ్రహ్మగుప్త, శ్రీనివాస రామానుజన్ వంటి వారు గణిత శాస్త్రంలో చేసిన పరిశోధనలు అసాధ్యమని తెలిపారు. రామాజున్ మ్యాథ్స్ జీనియస్‌గా చరిత్రలో నిలిచిపోయారని తెలిపారు. కార్యక్రమంలో వర్సిటీ వైస్ చాన్సలర్ జి. పార్థసారథివర్మ, ప్రో వైస్ చాన్సలర్లు ఎ.వి.ఎస్. ప్రసాద్, విద్యార్థి సంక్షేమ విభాగాధిపతి కె.ఆర్.ఎస్. ప్రసాద్, భగవాన్, గణిత విభాగ ఆచార్యులు పాల్గొన్నారు.

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)



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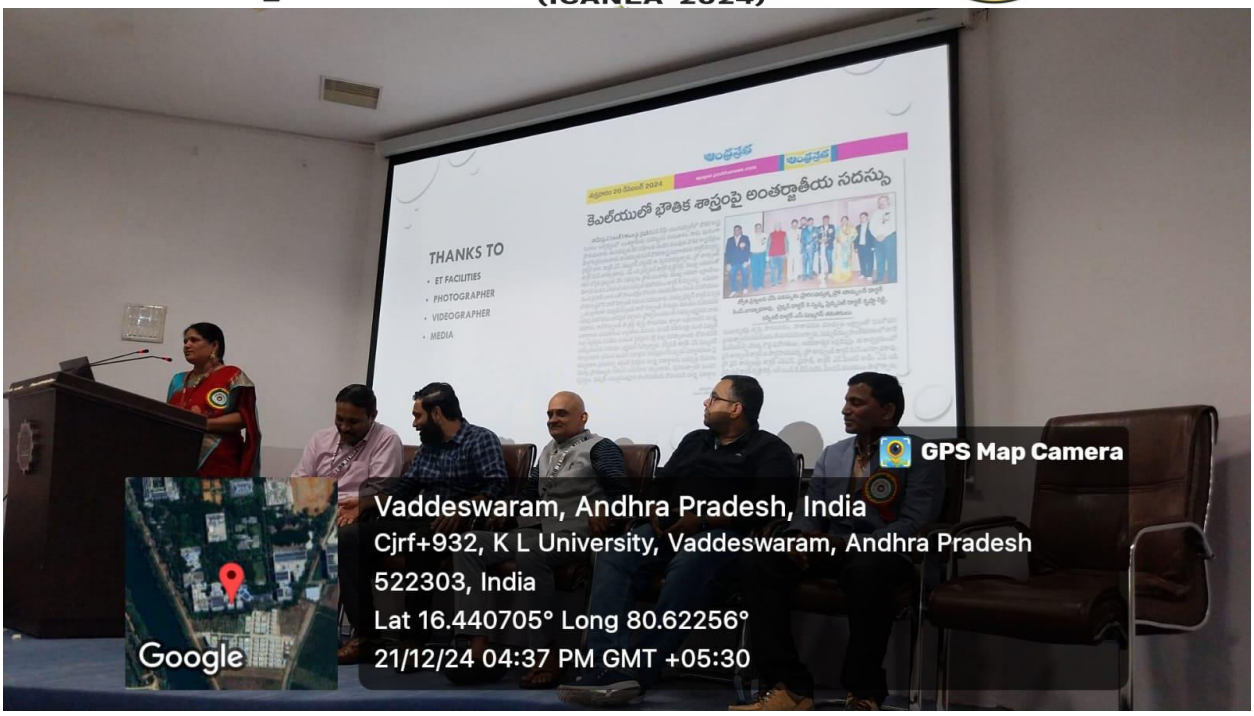




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**INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)**

# CERTIFICATE

## OF APPRECIATION

This certificate is presented to



## Dr.K.Thiruppathi

**Faculty, Dept of Phtsics, SRM Valliammai Engineering College, Chennai**

For your active participation in an **Oral presentation** with the Title: **A Sustainable Future: Leveraging Activated Carbon Thin-Film Composites for Environmental Remediation & Paper ID: ICANEA 2024 – 79** in "Advanced Nanomaterials for Energy Storage Applications" (ICANEA-2024) **from 19th – 21st December 2024 organized by the Department of Physics, Koneru Lakshmaiah Education Foundation (Deemed to be University), Guntur, Andhra Pradesh, India, Sponsored by ANUSANDHAN NATIONAL RESEARCH FOUNDATION (SERB) & DST-PURSE, India**

| Dr. S. Shanmugan | Dr. Swapna | Dr. V. Krishna Reddy | Prof. K. Subramanyam | Prof . A. Jagadeesh |
|---|---|---|---|---|
| Convenor | HoD & Conference Chair, KLEF | Principal – FED | Principal – Sciences | Director – FED |
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# CERTIFICATE

## of APPRECIATION

This certificate is presented to



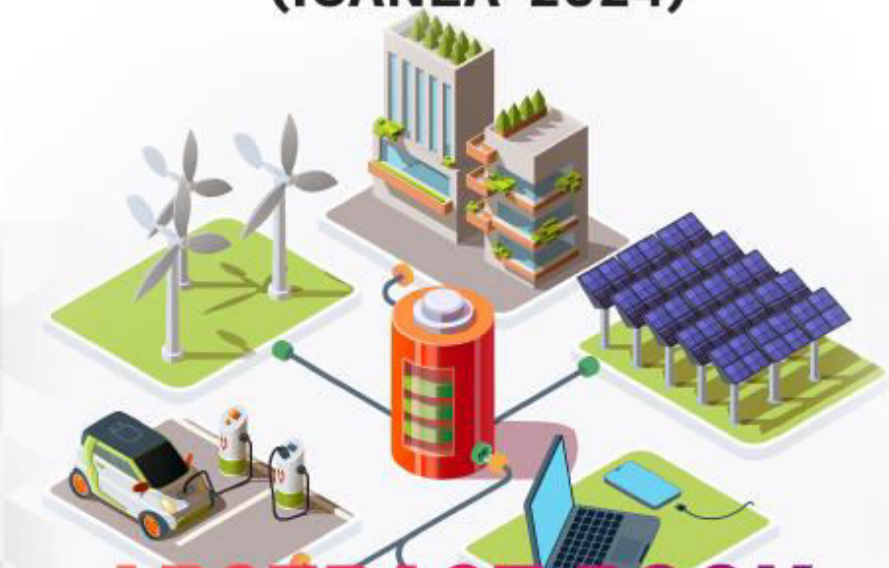
## Dr. Arunkumar Jayakumar

*Associate Professor, Department of EEE, St. Peter's Institute of Higher Education and Research, Avadi, Chennai.*

For your active participation as **INTERNATIONAL SPEAKER** in "Advanced Nanomaterials for Energy Storage Applications" (ICANEA-2024) **19th – 21st December 2024, organized by the Department of Physics, Koneru Lakshmaiah Education Foundation (Deemed to be University), Vaddeswaram, Guntur-522302, Andhra Pradesh, Sponsored by ANUSANDHAN NATIONAL RESEARCH FOUNDATION (SERB) & DST-PURSE, India**

| Dr. S. Shanmugan | Dr. K. Swapna | Prof. V. Krishna reddy | Prof. K. Subrahmanyam | Prof. A. Jagadeesh |
|---|---|---|---|---|
| Convener | HoD & Conference chair | Principal- FED | Principal – Sciences | Director, FED |
| KLEF | KLEF | KLEF | KLEF | KLEF |

# INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)



# ABSTRACT BOOK

ISBN-9789362853837

Organized by

**Department Of Physics**

**KONERU LAKSHMAIAH EDUCATION FOUNDATION**

(Deemed to be University)

Green Fields, Vaddeswaram, Guntur, Andhra Pradesh-522302

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

ICANEA-2024-11



# Investigation of structural, optical and mechanical parameters of Pr3+ -doped Oxyfluoro Antimony borate glasses

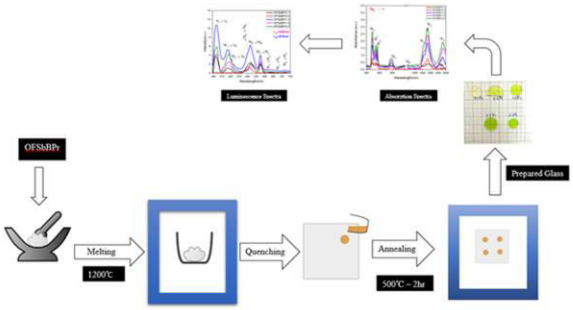


Ch. Pravallika1, K. Swapna1
1Department of Physics, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Andhra Pradesh, India.

## ABSTRACT

This study examines the physical, structural, optical, and mechanical properties of Oxyfluoroantimony borate (OFSbB) glasses doped with $Pr^{3+}$ ions, emphasizing their suitability for optical applications. X-ray diffraction (XRD), Transmission Electron Microscopy (TEM), and Energy Dispersive X-ray (EDX) analysis confirm the amorphous nature and precise glass composition. Optical absorption spectra reveal electronic transitions associated with $Pr^{3+}$ ions, supporting Judd-Ofelt parameter analysis and bonding characterization, which indicate ionic bonding in the glasses. Fluorescence studies highlight emission transitions at 484 nm ($^3P_0 \rightarrow {}^3H_4$) and 610 nm ($^1D_2 \rightarrow {}^3H_4$), showcasing potential for laser applications. Vickers microhardness tests reveal enhanced hardness and rigidity with increased $Pr^{3+}$ doping. Among the samples, OFSbBPr1.0 glass shows exceptional promise as a laser host material due to its optimal optical and mechanical properties.

**Graphical Abstract**




**Research & Methodology**

• Material Preparation: OFSbB glasses were synthesized using a melt-quenching technique with varying concentrations of $Pr^{3+}$ ions.

• Structural Analysis: XRD confirmed the amorphous nature, while TEM provided detailed structural morphology. EDX was used to verify glass composition.

• Optical Characterization: UV-Vis-NIR spectroscopy analyzed electronic transitions. Fluorescence spectroscopy identified emission bands and potential laser wavelengths.

• Mechanical Testing: Vickers microhardness tests assessed hardness and elastic moduli, reflecting the structural integrity of the glasses.

• Judd-Ofelt Analysis: Optical absorption data were used to calculate bonding parameters and elucidate ionic nature in the glasses.

INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

ICANEA-2024-2





# A Sustainable Approach to Solar Distillation: Self-Regulating Double-Slope U-Shaped Still with Activated Carbon Nanocomposites for Extended Water Production

**A. Sangeetha [a], S. Shanmugan [a*]**

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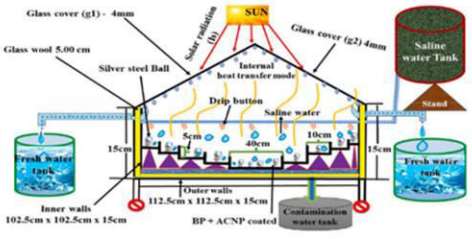
## ABSTRACT

Addressing water scarcity in remote areas, solar stills offer a promising solution despite limitations in productivity. This proposal investigates the thermal performance of a DUSD design employing a soft-coated Zinc Oxide (ZnO) nanocomposite blended with varying concentrations (5 - 30 wt %) of Activated Carbon (AC) nanoparticles derived from Zea Mays (ZZM). The impact of these ACZZM coatings on the DUSD's thermal efficiency was evaluated. Additionally, the influence of using standalone AC within the DUSD was assessed. Experimental results revealed that a 30 wt% ACZZM coating achieved the optimal DUSD performance, with a 24% increase in water temperature

**Graphical Abstract:**



INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)



# To study the photoluminescence effects of Samarium Doped Bismuth Antimony Fluoroborate Glasses

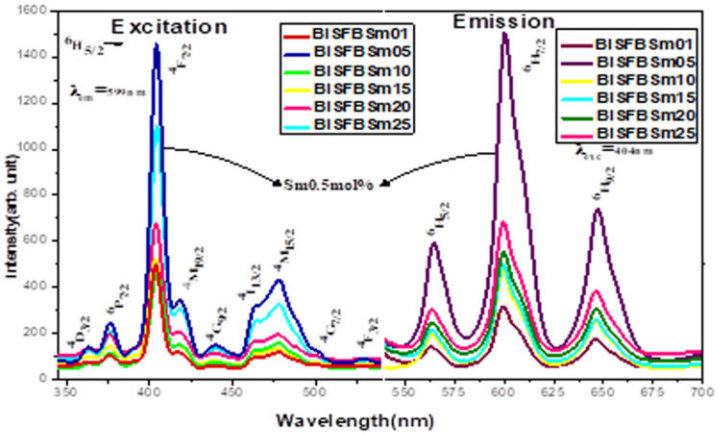
**Gunjan Mahajan,**

Department of Physics, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram-522502, A.P, India.

## ABSTRACT

The traditional melt-quenching method was employed to synthesize Bismuth-Antimony-Fluoroborate (BISFB) glasses doped with varying concentrations of trivalent samarium ions. Various physical properties of the prepared glasses were systematically evaluated. Structural and photoluminescence characterizations were performed, with X-ray diffraction (XRD) confirming the amorphous nature of the glasses. From absorption spectra Judd-Ofelt (JO) intensity parameters Ω2, Ω4 and Ω6 are evaluated. The photoluminescence (PL) spectra exhibit three distinct emission bands, corresponding to transitions from the 4G5/2 excited state to the 6H5/2, 6H7/2, and 6H9/2 states, which are located in the yellow, orange, and reddish-orange regions, respectively. Effective bandwidths and stimulated emission cross-sections (σp) for these bands have been determined. The decay curves of the 4G5/2 level were analyzed for different concentrations of $Sm^{3+}$ in BiSFB glasses to study the nature of the emission process. Additionally, CIE color coordinates were measured, confirming the reddish-orange emission characteristic of these glasses. Based on their luminescent properties, these glasses show potential for applications in optoelectronic devices and laser technology.

**Graphical Abstract:**



INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

# EV Charging Prospects & Reactive Power Support with Grid Integration

**KRISHNA NAG ARASAVALLI**

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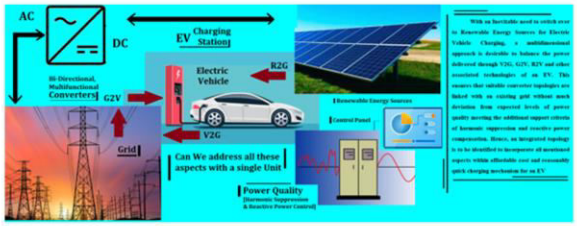
## ABSTRACT

Advent of Electrical Vehicles (EVs) gave better scope to use Renewable Energy Sources (RES) and paved way to innovate for interactive vehicles that can fulfill the stability and reactive power needs of a Smart Grid (SG). Plug-In EVs (PEVs) and advanced charging stations (CS) led to the ease of bidirectional EV operation. This paper attempts to review the emerging charging topologies of an Electric Vehicle along with existing operating schemes for reactive power compensation under vehicle to grid (V2G) technology. It is evident that previous work on V2G strategies have opened up vast research scope, but application of advanced control and optimization techniques would imply extensive use of V2G reactive power support.




Research & Methodology

Electric Vehicle behaves as a consumer in G2V mode while charging and a prosumer in V2G mode during discharging or at times as energy back up for home appliances inV2H mode but has the following challenges:

- Distribution System Operators must maintain coordinated EV charging in suitable PQ quadrant, setting dynamic cutoff limit on active power & extract reactive support to save total EV cost

- Discharging units are to be incorporated in the grid with fuzzy control at PCC

- Need to coordinate fly wheel energy storage by supervisory control for preserved battery life

- It is challenging to manage charging by EV aggregators with electronic remote control to modulate rate of charging or turn OFF/ON remotely with visual interfacing for adapting to the load & market conditions.

- Though researchers used hierarchical control headed by aggregator to incorporate active management system grouping all charging requests & controlling EV charging rate, the limitation in the distance that could be covered with a single recharge and the rate of recharge still persist.

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Department of Physics
Koneru Lakshmaiah
Education Foundation
Vaddeswaram, Guntur, AP., India




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DEPARTMENT OF SCIENCE & TECHNOLOGY
PURSE SPONSERED

# INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS FOR ENERGY STORAGE APPLICATIONS (ICANEA-2024)

## KONERU LAKSHMAIAH EDUCATION FOUNDATION

The Koneru Lakshmaiah Charity was established as a trust in the year 1980 with its official address is at Museum Road, Governerpet, Guntur District, Andhra Pradesh, India. It was started as KL College of Engineering in the Academic year 1980-81. KLEF was established in 1980-81, as KL College of Engineering, which was upgraded to KL College of Engineering Autonomous in 2006 by UGC and was declared as a Deemed to be University in 2009 by UGC, MHRD Govt. of India. NAAC assessed the University and accredited for a period of five years from 2018 to 2023 with CGPA of 3.57 with A++grade. In 2019 UGC, MHRD declared this intuition as Category 1 status. Research has taken a quantum step towards quality improvement through publishing in Scopus / SCI Indexed journals building an h-Index of 52 at the moment. KLEF has established an ecosystem to promote innovations including a center for Innovation, Incubation and Entrepreneurship development leading to start-ups in different disciplines. The university was also ranked 22 under NIRF 2024.

## ABOUT DEPARTMENT OF PHYSICS

The Department of Physics was established in the year 1980. The department offers M.Sc Physics and M.Sc Nano Science & Technology, and Ph.D. program in interdisciplinary research areas. The department is functioning with 13 highly experienced and qualified doctoral faculty. Faculty are also having post-doctoral research experience from different countries. Research work in the department is being carried out in various fields like Materials Science, Solar renewable energy, Nanotechnology, Space and Atmospheric Science, Theoretical and Computational Physics, Ultrasonic's and chemical thermodynamics. The department has 4 fully equipped sophisticated research labs of worth Rs. 3.5 crores. The department is recognized as DST-FIST Level 1 department with grant of Rs.107 lakhs funded by the Department of Science and Technology, Govt. of India, New Delhi. The department also has good number of sponsored research projects of worth Rs. 3 crores under different schemes such as DST woman scientist scheme, young scientist scheme, early career research award, SERB-Start up research grant, Core research grant and international travel support. Recently, the department of Physics and ECE bagged with a sponsored research project worth of Rs. 7 crores under DST-PURSE scheme to enhance infrastructure and research facilities in the university. The department has more than 350 research publications in highly reputed international journals with high impact factor. The department faculty have published 17 patents and book chapters. Faculty from the department awarded with **Associate Fellow of A.P Academy of Sciences, Amaravathi. The department faculty recognized as Top 2% renowned scientist in the world awarded by the Stanford University, California, USA**

## IMPORTANCE AND SCOPE OF THE CONFERENCE

### OBJECTIVE

(i) **Enhance Energy Storage Systems: The conference aims to promote research and discussions on improving the efficiency, capacity, and performance of energy storage systems like batteries and supercapacitors using advanced nanomaterials. By focusing on the role of nanotechnology, the objective is to drive innovations that contribute to more sustainable energy storage solutions.**

(ii) Foster Interdisciplinary Research: One of the main goals is to bring together scientists, engineers, and industry professionals from various fields to facilitate interdisciplinary collaborations. By integrating knowledge from diverse disciplines, the conference seeks to explore new advancements and practical applications of nanomaterials in energy storage technologies.

(iii) Promote Sustainable Energy Solutions: The conference strives to highlight the importance of developing sustainable nanomaterials that minimize environmental impact while addressing global energy challenges. The objective is to align research efforts with climate change goals, focusing on the potential of nanomaterials to contribute to renewable energy systems and energy-efficient technologies.

## CALL FOR PAPERS

ICANEA -2024 invites full-length original research articles from faculty, scientist, research scholars, and industry professionals from across the world. Research articles and review papers not exceeding twelve pages in a single column format shall be submitted. The manuscripts should not have been published or under review in any of the journals or conference proceedings. Further, the manuscript should contain the name, e-mail id of the corresponding author and affiliation of co-authors. The organizing committee of the conference invites research manuscripts on the following areas and related topics

### THEMES:

- Energy Storage and Conversion
- Functional Materials
- Bio- and Healthcare Materials
- Sensors and Actuators
- Optical Materials
- Computational and Simulation Methods
- Advances in nanostructured materials for batteries and supercapacitors
- Nanocomposites for enhanced energy density and charge cycles
- Green and eco-friendly nanomaterials for energy storage
- Recycling and reusability of nanomaterials in batteries
- Nanotechnology for lithium-ion, lithium-sulfur, and solid-state batteries
- Role of nanomaterials in hydrogen energy storage systems
- Modelling energy storage mechanisms at the nanoscale
- Nanomaterials in wearable, portable, and flexible electronics
- Integration of nanomaterials for energy harvesting and storage devices
- Storage solutions for solar, wind, and hybrid renewable energy systems
- Graphene, MXenes, and transition metal dichalcogenides (TMDs)
- Quantum dot applications for energy storage and conversion

## PUBLICATION

All the accepted papers will be published in conference proceedings with International Standard Book Number (ISBN) and selected papers will be published in Springer and Elsevier (SCI -Journal) and SCOPUS indexed journals.

## ABSTRACT SUBMISSION

Perspective authors are encouraged to present their original, unpublished research work, and the selected abstracts will be called for Oral presentations. Abstract up to 300 words in Times New Roman with font size 12pts, 1.5 line spacing may be submitted in .doc/.docx file with the author's name (presenting author name to be underlined), affiliation and corresponding author email ID, by 1st December 2024.

Submit your abstract to: icanea2024@kluniversity.in

## REGISTRATION FEE INCLUDES:

- Registration Kit.
- Access to all Keynote addresses and technical sessions (Offline Mode).
- Participation and presentation (poster/oral) certificates.
- Nominal accommodation charges will be paid by participants; however, Lunch will be catered by conference organizers.

## PARTICIPATION REGISTRATION FEE

| | National | International |
|---|---|---|
| UG/PG Students | INR 500 | USD 10 |
| Research Scholars | INR 1000 | USD 15 |
| Faculty | INR 1500 | USD 20 |
| Industrialist/Scientists | INR 2000 | USD 25 |

Is to unite researchers, scientists, academicians and industry experts to share knowledge, showcase advancement and explore the latest trends in nanomaterials and energy storage technologies.

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BRANCH: VADDESWARAM
IFSC CODE: SBIN0021361 SWIFT CODE: SBININBB181

## REGISTRATION LINK:

https://forms.gle/1oQsT1H8Q5XydoDo7

(After the completion of Payment, register for the program through the given link with payment proof)

## IMPORTANT DATES

| | |
|---|---|
| Last date for abstract submission: | 01, December 2024 |
| Last date for paper submission: | 10, December 2024 |
| Last date for acceptance: | 15, December 2024 |
| Early bird Registration: | 01, December 2024 |
| Registration Dead Line: | 10, December 2024 |
| Camera ready paper submission: | 18, December 2024 |
| Conference dates: | 19-21, December 2024 |

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## PROLOGUE

Economic growth alone no longer defines human progress. While development is commonly mapped through GDP growth, expanding markets, and rising incomes, lived realities across nations reveal persistent inequality, social stress, and ecological strain. This conference reimagines development beyond GDP, situating it within the human landscape and placing citizens' wellbeing, happiness, and quality of life at the heart of policy, measurement, and sustainable global futures.

## ABOUT THE UNIVERSITY

Koneru Lakshmaiah Education Foundation (KLEF), popularly known as KL Deemed to be University, has evolved into a premier institution of higher education in India through four decades of academic excellence. Established in 1980–81 as KL College of Engineering, the institution steadily expanded its academic stature and was granted autonomous status by the University Grants Commission (UGC) in 2006 and conferred Deemed to be University status on KLEF in 2009. Further strengthening its national standing, KLEF was accorded the prestigious Category '1' Institution status in 2019. KLEF offers a diverse range of undergraduate, postgraduate, and doctoral programs across multiple discipline. The university is supported by state-of-the-art infrastructure, advanced laboratories, digital learning resources, and a highly qualified and experienced faculty committed to mentoring students.

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The Department of Arts started its journey in 2016 by offering UG Programms in Economics & Political Science for undergraduate students approved by UGC with the objective of outcome-based education. The department follows the CBCS syllabus according to NEP 2020 guidelines, which is in line with all the premier institutions of India. Apart from the regular UG programme, the department offers integrated coaching for competitive examinations such as UPSC, State PSCs, SSC, Banking services, etc. The unique integrated coaching embedded in the academic programme is developed to refine their personality and make them future-ready.

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Centre for Field Learning is based on the conviction that a deep and thorough understanding of development processes and policies and its analysis can happen only by visiting the field. We undertake research on various topics that concern human welfare including health, environment, food and water security, income and livelihood. We also actively encourage other researchers in undertaking such research by guiding them or by enabling presentation of their research in our conferences. An additional goal of the Centre is to study in detail unique efforts of the individuals and organizations to address a social issue at the field level. And in this way, applaud the change makers.

## IMPORTANT DATES

| | |
|---|---|
| Last Date of Submission of Abstract (Soft Copy) | **31.03.2026** |
| **Intimation Of Acceptance** | **02.04.2026** |
| **Submission Of Full Paper** | **04.04.2026** |
| **Last Date For Registration** | **06.04.2026** |

**Registration Link: https://forms.gle/X82P8yYhGSi5HsSYA**

## SUBMISSION OF ABSTRACT

The Organising Committee invites submission of abstract(s) and full paper of original contributions on any topic related to the theme from the relevant field of social sciences and interdisciplinary subjects of the conference.

## ACCOMODATION

Accommodation and hospitality will be provided to the outstation participants during the conference dates based on the availability. However, separate charges need to pay for that.

## REGISTRATION FEES

The registration fee (non-refundable) is as follows:

| Categories | Fees |
|---|---|
| **International Participants** | **USD $10.00** |
| **Faculties & Industrialists** (Paper Presenters) | **Rs. 750.00** |
| **Research Scholars and Students** (Paper Presenters) | **Rs. 500.00** |
| **Participants** | **Rs. 350.00** |
| **Participants from KLEF** | **Rs. 250.00** |

For Multiple authors, each author has to register separately to get certificate. The registration fees include conference kit, certificate, working lunch, and snacks for both the days.

## PAYMENT DETAILS

| | | |
|---|---|---|
| **Name** | : | **KL University** |
| **Bank** | : | **State Bank of India** |
| **Account Number** | : | **62434363674** |
| **Branch** | : | **Vaddeswaram** |
| **IFSC Code** | : | **SBIN0021361** |


**For Further Details, Please Contact:**

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*e-mail :* **kluartsconference2026@gmail.com**


KL (DEEMED TO BE UNIVERSITY)

45 YEARS OF EDUCATIONAL LEADERSHIP

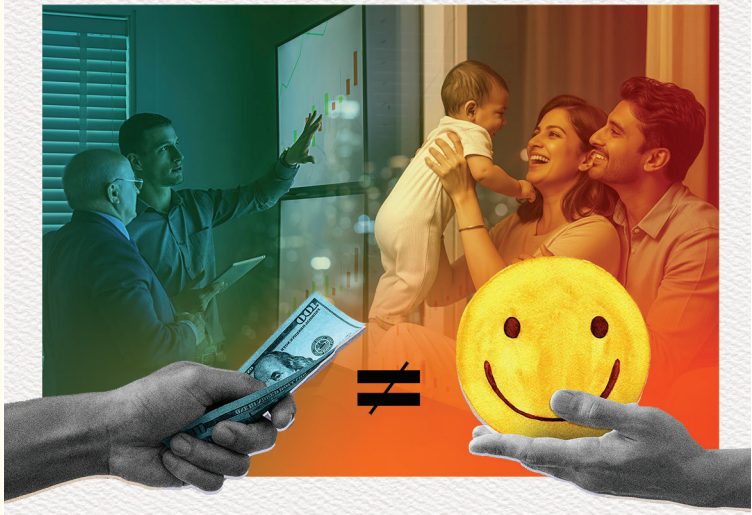
nirf 2025 NATIONAL INSTITUTIONAL RANKING FRAMEWORK RANKED 26 AMONG ALL UNIVERSITIES

INTERNATIONAL CONFERENCE ON

# GDP ≠ HAPPINESS

## RETHINKING DEVELOPMENT THROUGH CITIZENS' WELLBEING

**08TH-09TH APRIL, 2026**



Organised by

**DEPARTMENT OF ARTS**

**KONERU LAKSHMAIAH EDUCATION FOUNDATION (KLEF)**

(DEEMED TO BE UNIVERSITY)

Green Fields, Vaddeswaram, Guntur District, A.P, 522302

In Association with

**CENTER FOR FIELD LEARNING**

Memnagar, Ahmedabad, Gujarat, 380054

## ABOUT THE CONFERENCE

Dissatisfaction has been expressed time and again over GDP as the measure to evaluate a nation's progress. Human Development Index was born out of this dissatisfaction only. Although HDI added more depth into measuring a nation's progress to ensure the citizens' wellbeing, many aspects of wellbeing were missed out, like family support, job satisfaction, local environment, etc.

When the Happiness Index and Happy Planet index were introduced, they talked about citizens' wellbeing as the central focus to measure a nation's progress or success. But these indices were dismissed by many scholars as methodologically weak. However, we believe that these indices are on the right path. They assess the citizens' wellbeing by asking the citizens themselves about it. And it is a simple question: on the scale of 1-10, how satisfied are you with your life overall?

There can be many factors that affect the answer to this question. No one has studied such issues in detail. Some are talked about in the annual reports of Happiness Index like security and age. Some are mentioned in the e-book "Not GDP, Happiness!". We need to think of many other factors that affect people's life contentment, add them to this discussion on happiness and make the concept more widely accepted.

We invite papers that explore such factors. This is a multi-disciplinary conference, cutting across many social science fields like economics, sociology, rural development, psychology, health, and such. We invite researchers from varied backgrounds to explore the factors that affect people's life satisfaction.

We will give preference to the researchers who have talked to at least some people about the factors that they discuss in their paper. Such field investigation will corroborate the arguments given in the paper. At least a small survey is recommended.

This conference is inspired by the ebook, "Not GDP, Happiness" by Alka Parikh and Aaisha Nazrana. We recommend that the paper submitters refer to this book to understand the concept of the conference properly.

### *Conference Thems:*

· Basic needs and life satisfaction
· Sense of psychological security and life satisfaction
· Gender and life satisfaction
· Health services and life satisfaction
· Age and life satisfaction
· Social factors like household size, caste, class, local culture and traditions and life satisfaction
· Life satisfaction in urban Vs rural areas
· Fulfilment in profession or work and life satisfaction

These are just indicative topics. You can think of other factors too that can affect the overall satisfaction of life.

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## LAYOUT OF THE ABSTRACT & FULL PAPER

Abstract with a suitable title must be written in English within 250 words alongwith maximum five keywords.

**Title** : A good title within 15 words is suggested.

**Author(s)** : Author's affiliation should be mentioned. In case of multiple authors, corresponding author should be mentioned properly.

**Text** : Normal, Times New Roman Font & 12 point indent (Compatible Mode). must clearly indicate the problem, methodology, result of the work.

**Reference** : Author (s) should follow the latest APA style of referencing system. Word Limit of the Full Paper: Full paper hould be written within 5000 word limit,maximum 15 A4 size pages with 1.5 line spacing.

### Other Information

1. If confirmation e-mail is not received within 48 hours after submission, please contact the Convenor
e-mail: *kluartsconference2026@gmail.com*

2. Acceptance letters will be issued to the corresponding author on or before 20th March, 2026 by e-mail only.

## BEST PAPER PRESENTATION AWARD

*One best paper will be selected from all the technical sessions. The winners will be felicitated with the 'Best Paper Presentation Award."*

## PUBLICATION PROCESS

- All accepted manuscript will be published in KLU index journal.
- The manuscript will be accepted with less than 10% plagiarism.
- Once paper is submitted to the conference it shall not be sent to any other conferene or journal for publication.
- The publication fee for the selected manuscript charged separately.

## How to Reach KLEF

Koneru Lakshmaiah Education Foundation (KLEF), Vijayawada, is well connected by road, rail, and air, ensuring convenient access for delegates from across India and abroad.

**By Bus:** KLEF is easily accessible from Vijayawada city by frequent APSRTC and TSRTC bus services. The campus is located near Vaddeswaram, along National Highway-16, and can be reached from major bus terminals such as Pandit Nehru Bus Station (PNBS) within 30-40 minutes by city buses, taxis, or auto-rickshaws.

**By Train:** Vijayawada Junction, one of the busiest railway hubs in South India, is well connected to all major cities. From the railway station, KLEF is approximately 20 km away and can be reached by taxi, app-based cabs, or local transport via

**By Flight:** Vijayawada International Airport (Gannavaram) connects the city with major domestic destinations and select international routes. The campus is about 35 km from the airport and can be conveniently accessed by prepaid taxis or app-based cab services.

# REPORT ON THE INTERNATIONAL CONFERENCE

**"GDP ≠ Happiness: Rethinking Development Through Citizens' Wellbeing"**

8–9 April 2026
Department of Arts, Koneru Lakshmaiah Education Foundation (KLEF), Vijayawada
In association with the Centre for Field Learning

## 1. Overview

The Department of Arts, Koneru Lakshmaiah Education Foundation (KLEF), Vijayawada, in association with the Centre for Field Learning, organized a two-day International Conference titled "GDP ≠ Happiness: Rethinking Development Through Citizens' Wellbeing" on 8 and 9 April 2026. The conference critically examined the limitations of GDP as the sole indicator of development and promoted a holistic, human-centred approach focused on citizens' wellbeing, happiness, and quality of life. Academicians, researchers, and students from institutions in India and abroad participated.

## 2. Inaugural Session and Key Addresses

The inaugural session began at 10:00 a.m. on 8 April 2026 with a welcome to the dignitaries, the ceremonial lighting of the lamp, and Saraswati Vandana. Industry leader Cherukuri Kutumba Rao attended as Chief Guest and shared insights on inclusive growth through the P4 (Public–Private–People Partnership) initiative. He highlighted the need to rethink development paradigms in contemporary socio-economic contexts.



Prof. Alka Parikh, Founder of the Centre for Field Learning (CFFL), Ahmedabad, delivered a keynote address on the multidimensional nature of wellbeing and the importance of interdisciplinary research. The discussion considered happiness rankings and examples of countries that invest in social trust, welfare systems, and quality of life. Speakers emphasized that economic strength alone does not guarantee happiness; social harmony, human connection, empathy, and emotional wellbeing also matter.

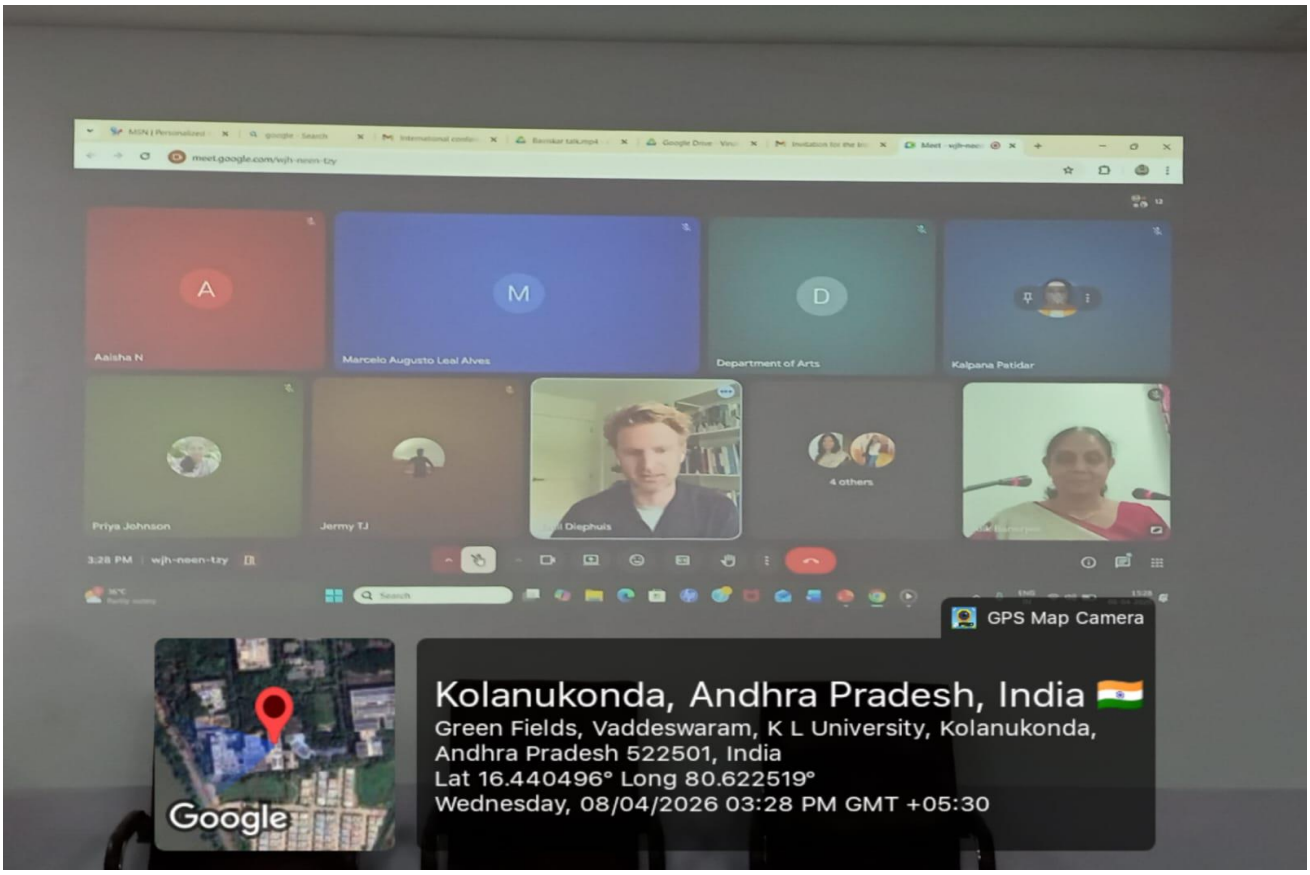
## 3. Conference Themes

- Basic needs and life satisfaction
- Psychological security
- Gender and wellbeing
- Health services and age-related dynamics
- Social factors, including caste and class
- Urban–rural disparities
- Professional fulfilment

The discussions highlighted the need to incorporate these dimensions into policy frameworks for sustainable and inclusive development.

## 4. Technical Sessions and Programme

On Day 1, the technical sessions featured invited talks by eminent scholars. Four speakers from India presented their research online, with 20 minutes allocated to each speaker. A second session featured four international speakers who offered perspectives on wellbeing, happiness indices, and alternative development approaches. The sessions encouraged academic exchange and comparison across socio-economic contexts.




Day 2 focused on thematic discussions and invited talks. A panel discussion titled “Rethinking Development and Wellbeing” brought together experts from different disciplines to discuss psychological, social, and economic determinants of life satisfaction. A roundtable explored emerging research areas and methods for measuring wellbeing. The conference concluded with a valedictory session, the presentation of the rapporteur’s report, and reflections from dignitaries.

## 5. Participants and Research Presentations

Notable participants included Dr. P. Umanadha Sharma (Department of Arts, KLEF), Ms. Vasanti Vasireddy (Business School, KLEF), Mr. Kallepally Prashanth (Kakatiya University, Telangana), and Ms. Shwetha Nagarajan and Mr. Tom Abraham (St. Joseph's University, Bangalore), among others.

Examples of research presentations included:

- "Cultivation of Virtue: The Key to Escaping Modern Dissatisfaction" — Ms. Vasanti Vasireddy
- "Urban-Rural Divides in Life Satisfaction" — Mr. Kallepally Prashanth
- "Life Satisfaction in Urban vs Rural Areas" — Ms. Shwetha Nagarajan and Mr. Tom Abraham

These presentations examined philosophical and behavioural dimensions of wellbeing, comparative socio-economic conditions, and the role of social structure, cultural context, and psychological security in shaping life satisfaction.

## 6. Key Outcomes and Impact

- Reinforced the view that conventional economic indicators alone cannot fully capture human wellbeing.
- Highlighted field-based research, qualitative assessment, and participatory approaches to understanding life satisfaction.
- Enabled interdisciplinary dialogue among economists, sociologists, psychologists, and development practitioners.
- Provided a platform for researchers to present work, exchange ideas, and identify future directions in wellbeing research.
- Emphasized the relationship between governance, development, happiness, and responsible leadership.

## 7. Valedictory Session

During the valedictory session, the conference was described as having achieved its objective of encouraging critical discussion of alternative measures of development. Dean (R&D) BTP Madhav emphasized the importance of happiness in helping individuals become more thoughtful and socially conscious. K. Anil Kumar highlighted the relationship between governance, development, and human wellbeing in nurturing responsible leadership.

## 8. Conclusion

The conference offered a valuable platform for examining development beyond conventional economic measures. Its discussions highlighted the importance of citizens' lived experiences, relationships, sense of purpose, dignity, and contentment when considering national progress. The insights generated are expected to contribute to academic scholarship and policy formulation aimed at improving citizens' quality of life. The conference closed with a central question: Can a nation be considered developed if its people are not happy?

## 9. Photographic Documentation

The source PDF includes photographs documenting the inaugural ceremony, invited talks, online presentations, conference sessions, participant presentations, and the valedictory session. These photographs can be inserted into this section in the final institutional report.

