



Program Schedule

INAC-06

NATIONAL CONFERENCE ON

**INNOVATIVE DESIGN & ENGINEERING IN
AEROSPACE SYSTEMS**

IDEAS 2024

2nd & 3rd February, 2024

ORGANISED BY

**INDIAN SOCIETY OF SYSTEMS FOR SCIENCE & ENGINEERING
KANNIYAKUMARI CHAPTER**

IN ASSOCIATION WITH



INAC-06**DAY 1**
2nd Feb 2024 (Friday)**IDEAS 2024****INAUGURAL SESSION****Venue: Auditorium, IPRC**

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|-------------------|---|
| 08:30 - 11:30 hrs | <ul style="list-style-type: none"> ▶ Registration ▶ Tamil Thai Vazhthu ▶ Welcome address by Shri. J. Asir Packiaraj, Director, IPRC ▶ Presidential address by Dr. V. Narayanan, Director, LPSC President, ISSE, National Governing Council ▶ Lighting of Lamp ▶ Inaugural address by Dr. B. N. Suresh, Chancellor, IIST ▶ Special address by Shri. S. Somanath, Secretary, DOS & Chairman, ISRO ▶ ISSE Award function - Shri. N. Jayan, GD, LPSC Secretary, ISSE, National Governing Council ▶ Release of Souvenir ▶ Plenary talk by Dr. S. Unnikrishnan Nair, Director, VSSC ▶ Vote of Thanks by Shri. J. Sivakumar, DD, IPRC President, ISSE, Kanniyakumari Chapter ▶ National Anthem ▶ Inauguration of Exhibition by Shri. E. S. Padmakumar, Director, IISU |
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| 11:30 - 11:45 hrs | Tea |
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| 11:45 - 12:00 hrs | Screening of video: "Evolution of IPRC" |
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KEYNOTE SESSION/ INVITED TALK

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| 12:00 - 12:30 hrs | Invited talk #1: Shri. Amit Sharma , MD & CEO, Tata Consulting Engineers Limited Topic: Aerospace Extended Enterprise Trends - Collaborative Innovation, Excellence and Acceleration |
| 12:30 - 12:45 hrs | Business Talk by Platinum Sponsor #1: M/s. BUSTEC Pvt. Ltd. |
| 12:45 - 13:00 hrs | Business Talk by Platinum Sponsor #2: M/s. BELL-O-SEAL VALVES Pvt. Ltd. |
| 13:00 - 13:15 hrs | Business Talk by Platinum Sponsor #3: M/s. SIEMENS Pvt. Ltd. |
| 13:15 - 14:30 hrs | Lunch |
| 14:30 - 15:00 hrs | Invited talk #2: Shri. R.S. Sawant , Site Director, Kudankulam Nuclear Power Plant, NPCIL Topic: Nuclear Energy - Clean Energy for Future |
| 15:00 - 15:30 hrs | Invited talk #3: Ms. Alla Dovbish , Engineering Team Leader, JSC Cryogenmash, Russia Topic: Methods for producing ultra purity liquified Methane |

TECHNICAL SESSION 1 (3 Parallel Sessions)

| | | | |
|-------------------|---------------------------------|-------------------------|--------------------------|
| 15:45 - 17:15 hrs | Session 1A - Galaxy Hall | Session 1B - Ponni Hall | Session 1C - Vaigai Hall |
| 17:15 - 18:00 hrs | High Tea | | |
| 18:00 - 19:30 hrs | Cultural Programme @ Auditorium | | |
| 19:30 hrs | Networking Dinner | | |

INAC-06**DAY 2**
3rd Feb 2024 (Saturday)**IDEAS 2024****KEYNOTE SESSION/ INVITED TALK****Venue: Auditorium, IPRC**

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|-------------------|---|
| 09:30 - 10:00 hrs | Invited talk #4: Shri. R. Hutton , Project Director, Gaganyaan, ISRO Topic: Indian Human Space Mission - The ladder of challenges |
| 10:00 - 10:30 hrs | Invited talk #5: Dr. S. V. Ramana Murty , Director, Gas Turbine Research Establishment, DRDO Topic: Challenges in the development of Indigenous Gas turbine Propulsion system - A perspective |

10:30 - 10:45 hrs **Tea****TECHNICAL SESSION 2 (4 Parallel Sessions)**

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|-------------------|--|
| 10:45 - 11:45 hrs | Session 2A - Galaxy Hall, Session 2B - Ponni Hall, Session 2C - Vaigai Hall Session 2D - Poster Presentation - Auditorium 1 st Floor |
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TECHNICAL SESSION 3 (3 Parallel Sessions)

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|-------------------|---|
| 11:45 - 12:45 hrs | Session 3A - Galaxy Hall, Session 3B - Ponni Hall, Session 3C - Vaigai Hall |
|-------------------|---|

12:45 - 13:30 hrs **Visit to IPRC Facilities**13:30 - 14:30 hrs **Lunch****TECHNICAL SESSION 4 (3 Parallel Sessions)**

| | | | |
|-------------------|--------------------------|-------------------------|--------------------------|
| 14:30 - 15:30 hrs | Session 4A - Galaxy Hall | Session 4B - Ponni Hall | Session 4C - Vaigai Hall |
|-------------------|--------------------------|-------------------------|--------------------------|

15:30 - 15:45 hrs **High Tea****VALEDICTORY FUNCTION****Venue: Auditorium, IPRC**

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|-------------------|---|
| 15:45 - 16:45 hrs | <ul style="list-style-type: none"> ▶ Tamil Thai Vazhthu ▶ Welcome address by Smt. K. S. Deepa, Vice president, ISSE Kanyakumari Chapter ▶ Chief guest address ▶ Feedback session ▶ Best paper awards ▶ Handing over of INAC Trophy ▶ Vote of Thanks by Smt. B. Lebonah, Secretary, ISSE Kanyakumari Chapter ▶ National Anthem |
|-------------------|---|



INAC-06**Technical Session 1****IDEAS 2024****Technical Session 1A****Date: 02.02.2024 Time: 15:45 - 17:15 hrs****Aerospace Technology****Venue: Galaxy Hall**

| Paper ID | Paper Title |
|-----------|---|
| IDEAS-29 | Preliminary Design & Analysis of Nanosatellite Structure made with Lattice Sandwich Panels |
| IDEAS-35 | Satcom Technologies and its Applications to Grassroot Level |
| IDEAS-39 | Study on Usage of Silica Phenolic Composite as Chamber and Firefly Gasket for N_2O_x and MMH Application of Spacecraft Engines |
| IDEAS-43 | Reverse Engineering using 3D Scanners for Launch Vehicle Applications |
| IDEAS-95 | Mechanical and Microstructure Properties Evaluation of Pterocarpus Marsupium/ Cochlospermum Gossypium Polyester Composite |
| IDEAS-113 | Investigations of Surface Textures on Aerospace Material of Si_3N_4 -Tin Ceramic Composites and $MoSi_2$ -SiC Intermetallic Ceramic Composite |
| IDEAS-118 | Debris Minimization by Controlled Re-Entry of PSLV Upper Stage |

Technical Session 1B**Date: 02.02.2024 Time: 15:45 - 17:15 hrs****Avionics & Instrumentation Technology****Venue: Ponni Hall**

| Paper ID | Paper Title |
|-----------|---|
| IDEAS-15 | Multi – Channel Voltage Level Translator |
| IDEAS-18 | FMEA of Cryo Stage Data Acquisition System used for Propellant Filling of Human Rated Missions |
| IDEAS-60 | Performance Study of Dynamic Pressure Sensor Envelope Analysis and Vibration Effects during Vikas Engine Testing |
| IDEAS-68 | Design and Development of Microcontroller Based Antenna Control System for Tracking of Low Earth Orbit Search and Rescue Satellites |
| IDEAS-74 | Design and Development of Intelligent Fire Detection System Based on Multi-Sensor Fusion Mechanism for Ground Test Application |
| IDEAS-92 | Dynamic Response of PCB With Components for Spacecraft Application |
| IDEAS-104 | Design of Field Dynamic Simulator for Cryogenic Instrumentation System |

Technical Session 1C**Date: 02.02.2024 Time: 15:45 - 17:15 hrs****Aerospace Systems Modeling & Simulation****Venue: Vaigai Hall**

| Paper ID | Paper Title |
|-----------|--|
| IDEAS-22 | Aerodynamic Study of Gas-Surface Interaction for a Rough Surface |
| IDEAS-40 | Study of Differential Temperature for Structural Behaviour of the Reflector and its Effect on RF Characteristics of 11m Antenna |
| IDEAS-56 | Integrating Finite Element Modeling and Experimental Insights: Predicting Microstructural Evolution in a Ni-Cr-W-Mo-Ti-Al Superalloys under Hot Working Conditions |
| IDEAS-69 | Interplanetary Solar Sail Trajectory Optimization using Differential Evolution |
| IDEAS-108 | Conical-Gaussian Heat Source Model for Electron Beam Welding of Inconel X750 |
| IDEAS-102 | CFD Analysis and Experimental Validation of Thermal Loads on Flame Deflector Plates at Rocket Engine Test Stand |
| IDEAS-90 | Simulations over a Winged Launch Vehicle at Transonic Mach Number and Validation of Computed Pressure with Flight Data |

INAC-06**Technical Session 2****IDEAS 2024****Technical Session 2A****Date: 03.02.2024 Time: 10:45 - 11:45 hrs****Propulsion Technology****Venue: Galaxy Hall**

| Paper ID | Paper Title |
|-----------|---|
| IDEAS-03 | Systems Approach for Realising the Power Head of a LOX/RP-1 Engine |
| IDEAS-16 | Development of Ejecta Pulser for Evaluating Combustion Stability of Solid Rocket Motors |
| IDEAS-78 | Design, Flexibility Analysis & Testing of Super Insulated Liquid Oxygen Line with Valve and Bellows for Segment of SC-120 Stage Augmentation. |
| IDEAS-91 | Experimental Investigations with an alternate Scrubbing Medium for the Neutralization of NOx Vapours |
| IDEAS-107 | Evaluation of Specific Impulse using Pulse Flow Measurement System for Hot & Cold Pulse Mode Firing in SM & CM Modules for Manned Mission |
| IDEAS-110 | Concept Demonstration of Acoustic Resonance Igniter |
| IDEAS-81 | Mathematical Modelling of Heat Transfer Process during Single Phase Chilling of Large Diameter Cryogenic Pipelines |

Technical Session 2B**Date: 03.02.2024 Time: 10:45 - 11:45 hrs****Launch Vehicle Technology****Venue: Ponni Hall**

| Paper ID | Paper Title |
|----------|---|
| IDEAS-01 | Pull-Off Test on Polyurethane Modified Isocyanurate Rigid Foam over the Cryogenic Propellant Tank Surface |
| IDEAS-06 | Evaluation of Mass Spectrometry Helium Leak for Different Fraction of Helium Gas |
| IDEAS-12 | Structural Design and Analysis of Grid Fins for Re-Entry Modules |
| IDEAS-36 | Agile Stylised Approach to Manage "Large Infrastructure Projects" -An Insights to Launch View Gallery Realisation |
| IDEAS-30 | Management of UAVs Programs and Projects: A Case Study |
| IDEAS-46 | Power System Design of Reusable Launch Vehicle (RLV) for Runway Landing Experiment |

Technical Session 2C**Date: 03.02.2024 Time: 10:45 - 11:45 hrs****Propulsion Technology****Venue: Vaigai Hall**

| Paper ID | Paper Title |
|----------|--|
| IDEAS-13 | Development of Process Failure Mode and Effects Analysis (PFMEA) for an Aerospace Pneumatic Valve to alleviate Process Induced Risks |
| IDEAS-45 | Precise and Remote Filling of Gas Bottle with High Pressure Hazardous Gas using Electronic Pressure Regulator |
| IDEAS-48 | Mitigation of Thermally Driven flow Oscillation in Cryogenic Pipeline due to insufficiently Cooled Branch Pipeline |
| IDEAS-54 | Futuristic Propulsion Technology - Review on Aluminum and Ice Solid Propellant (ALICE) |
| IDEAS-63 | Design of Diffuser Ejector System for 1400N Engine HAT |
| IDEAS-96 | Preliminary Research towards understanding Flow Field in a Rotating Detonation Engine |

Technical Session 2D**Date: 03.02.2024 Time: 10:45 - 11:45 hrs****Poster Presentation****Venue: Auditorium 1st Floor**

INAC-06**Technical Session 3****IDEAS 2024****Technical Session 3A****Date: 03.02.2024 Time: 11:45 - 12:45 hrs****Avionics & Instrumentation Technology****Venue: Galaxy Hall**

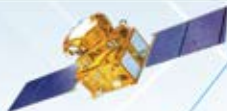
| Paper ID | Paper Title |
|-----------|--|
| IDEAS-51 | Real Time Data Comparison with Historical Data by Using OPC Protocol |
| IDEAS-53 | Development of Matlab based Tool for Protection Coordination Studies for 11KV Power Distribution to Launch Complex Facilities |
| IDEAS-58 | Integrated Processors Test Bed for Small Satellite Launch Vehicle using Linux |
| IDEAS-70 | Practical Approach to Cold Flow Testing of CE-20 LH ₂ Gas Turbine using Eddy Current Type Dynamometer with Digital Controller |
| IDEAS-76 | Digital Twin Empowered Evaluation and Comparison of Control Strategies Deployed in Process Automation |
| IDEAS-103 | Fiber Bragg Grating based Strain Sensor with Temperature Compensation Technique using additional FBG on Metallic Packaging |

Technical Session 3B**Date: 03.02.2024 Time: 11:45 - 12:45 hrs****Launch Vehicle Technology****Venue: Ponni Hall**

| Paper ID | Paper Title |
|-----------|---|
| IDEAS-66 | Evaluation of Emulsification based Flame Holder cum Injector of Scramjet Engine |
| IDEAS-88 | Effect of Aerodynamic Stabilizer (AST) on Aerodynamic Coefficients of Generic Launch Vehicle core alone Configuration |
| IDEAS-89 | Aerodynamic Analysis of a Blended Wing UAV in Formation Flight Using CFD |
| IDEAS-97 | Optimization of Propellant Filling System to Enhance Operational Safety during Propellant Servicing |
| IDEAS-106 | Flight Acceptance Testing of Umbilicals for Liquid Stages of PSLV and GSLV MK-II Mission |
| IDEAS-119 | High Speed Optical Image Analysis to Evaluate Throttling Performance of Liquid Rocket Engine |

Technical Session 3C**Date: 03.02.2024 Time: 11:45 - 12:45 hrs****Propulsion Technology****Venue: Vaigai Hall**

| Paper ID | Paper Title |
|-----------|---|
| IDEAS-61 | Performance Evaluation of Propellant Inhibition through Subscale Solid Motor Test |
| IDEAS-79 | Testing Philosophy for Throttling Engine for Lunar Lander |
| IDEAS-101 | Failure Analysis of Last Chance Filter in High Pressure Circuit |
| IDEAS-98 | Characterization of Hydrogen Burner to Burn Methane during Testing of LOX-Methane Engine |
| IDEAS-99 | Numerical Modelling of Propellant Flow Switchover between Tanks for Semi-Cryogenic Engine Testing |
| IDEAS-111 | Effect of Internal Axial and Radial Spray Cooling on Back Pressure in Diffuser-Ejector System |



INAC-06**Technical Session 4****IDEAS 2024****Technical Session 4A****Date: 03.02.2024 Time: 14:30 - 15:30 hrs****Aerospace Technology (Students)****Venue: Galaxy Hall**

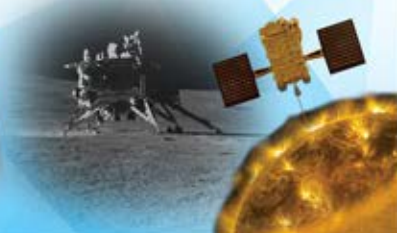
| Paper ID | Paper Title |
|-----------|--|
| IDEAS-26 | Thermal Resistance of Bio-Fiber based Ultra-High Toughness Cementitious Composites for the Construction of Space Vehicle Launching Pads |
| IDEAS-28 | Laser-Induced Combustion- Interactions, Effects and Applications |
| IDEAS-44 | Adhesive Technologies for Space Application |
| IDEAS-59 | Advanced Materials: Copper/ Diamond Composites for Enhanced Performance |
| IDEAS-80 | Thermodynamically Guided Design and Ingot Metallurgy as a Scalable Approach for Production of Cu-Cr-Nb Alloys for High Heat Flux Application |
| IDEAS-120 | Static and Dynamic Analysis of Moringa Oleifera Reinforced Bio Polymer Composite |

Technical Session 4B**Date: 03.02.2024 Time: 14:30 - 15:30 hrs****Aerospace Systems Modeling & Simulation (Students)****Venue: Ponni Hall**

| Paper ID | Paper Title |
|-----------|---|
| IDEAS-05 | Development of Neural Network Model Implanted with Genetic Algorithm for Quality Prediction |
| IDEAS-38 | Site Energy Prediction using Machine Learning |
| IDEAS-72 | Meteoroid Detection |
| IDEAS-64 | Deep Learning Strategy for Space Applications: A Forecasting Perspective |
| IDEAS-105 | A Theoretical Model for Estimation of Aerodynamic Performance of Electric Multirotor UAVs in High-Altitude Hovering |

Technical Session 4C**Date: 03.02.2024 Time: 14:30 - 15:30 hrs****Avionics & Instrumentation Technology (Students)****Venue: Vaigai Hall**

| Paper ID | Paper Title |
|----------|---|
| IDEAS-08 | Efficient FIR Filter Design using Distributed Arithmetic Logic |
| IDEAS-27 | Navigating the Cosmos: "The Promise of Generative AI in Space Premises" |
| IDEAS-49 | Machine Learning based Analysis on Martian Weather Data |
| IDEAS-57 | Enhancing GPS Predictions for Aerospace Navigation using Machine Learning Algorithms |
| IDEAS-65 | Cosmic Sentinel: An Integrated AI-Powered Framework for Optimal Spacecraft Operations |



About Indian Society of Systems for Science & Engineering (ISSE)

Indian Society of Systems for Science and Engineering (ISSE) is a professional body for interdisciplinary collaboration of Systems Science and Engineering. ISSE is unique among the systems oriented institutions having the objective of bringing together scholars and practitioners from academic, business and R&D organisations for promoting the systems concept. The society was started in 2010 at Vikram Sarabhai Space Centre (VSSC), ISRO with its Headquarters at Thiruvananthapuram and was formally registered under the Travancore Cochin Literary Scientific and Charitable Societies Registration Act -1995. ISSE has 13 chapters across the country which are located at Thiruvananthapuram, Kochi, Bangalore, Manipal, Hyderabad, Bhubaneswar, Ahmedabad, Amaravati, Chandigarh, Sriharikota - Chennai, Trichy, Coimbatore and Kanniyakumari.

Explore Local Gems

Discover these nearby attractions to enhance your experience:



Kanyakumari



Suchindram Temple



Padmanabhapuram Palace



Thirparappu Water Falls



Chitharal Rock Temple

About Venue

ISRO Propulsion Complex (IPRC) Mahendragiri, is located near Kanniyakumari at Mahendragiri hills, Tirunelveli District, Tamil Nadu. The role of IPRC is to carry out research for the development of liquid propulsion systems both for Satellites and Launch Vehicles. IPRC is equipped with state of the art facilities for the assembly, integration and testing of liquid propulsion systems.

