Nanotechnology Research Centre

AFMD 2026

SRM INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act, 1956)

2nd INTERNATIONAL CONFERENCE ON ADVANCED FUNCTIONAL MATERIALS AND DEVICES (AFMD 2026)

March 19 - 24, 2026

PROGRAM BOOKLET

Supported by

Anusandhan National Research Foundation

CSIR
भारत का नवाचार इंजन
The Innovation Engine of India

DRDO

Co-Supported by

ISE International Society of Electrochemistry

The Japan Society of Applied Physics

The Ceramic Society of Japan

Organized by

NANOTECHNOLOGY RESEARCH CENTRE (NRC)

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

Kattankulathur - 603 203, Chennai, Tamil Nadu, India

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Prof. M. Navaneethan

Nanotechnology Research Centre

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Council of Scientific & Industrial Research (CSIR), Ministry of Science & Technology, Government of India

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THEMES

AC - Advanced Characterizations

QD - Quantum Materials & Devices

EN - Energy and Sustainable Materials

EH - Environmental & Health Monitoring

EL - Electronics, Optics & Photonics

CM - Computational Materials Science & Materials Informatics

BM - Biomaterials & Soft Materials

AFM - Advanced Functional Materials

TF - Thin Films & Surfaces

IA - Industry–Academia Partnership

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March 19-24, 2026

PROGRAM SCHEDULE

Day – 1

(March 19, 2026 - Thursday)

Dr. T. P. Ganesan Auditorium (TPGA)	**12.00 - 14.00**	**Registration**	
	14.00 - 14.40	**Distinguished Plenary Lecture**	
		Prof. Ganapathy Vaitheeswaran University of Hyderabad ***Title:*** *Evidence for multifold phonon degeneracies in cubic Nb_3Bi*	
	14.40 - 15.00	**Tea Break**	
Parallel Session - I			
TP - LH 711	**15.00 - 15.35**	**KN 01**	**Prof. A. M. Kannan** Arizona State University, USA ***Title****: Vanadium redox flow battery for large scale Energy storage for load management*
	15.35 - 16.05	**IT 01**	**Dr. Aravind Kumar Chandiran** Indian Institute of Technology Madras, Chennai ***Title:*** *Polarized halide perovskite materials for photoelectrochemical water splitting*
	16.05 - 16.35	**IT 07**	**Dr. Vikum Premalal** University of Sri Jayewardenepura, Sri Lanka ***Title:*** *Facile Synthesis of High-Performance CuS-Coated CuI Cathode for Seawater-Activated Magnesium Batteries*

TP - LH 604	**15.00 - 15.35**	**KN 02**	**Prof. Vijayamohanan Pillai** Indian Institute of Science Education and Research, Tirupati ***Title:*** *Van der Waals Gap Engineering of Two Dimensional (2D) Materials: Applications for Energy Storage*
	15.35 - 16.05	**IT 02**	**Prof. N. Kamaraju** Indian Institute of Science Education and Research, Kolkata ***Title****: Probing Magnetic Order and Spin–Charge–Lattice Coupling in van der Waals Magnets Using Femtosecond Time-Resolved Reflectivity*
	16.05 - 16.35	**IT 08**	**Dr. Pavels Onufrijevs** Riga Technical University ***Title****: Laser-Structured Stainless Steel for Low-Temperature Friction Reduction*
TP - LH 605	**15.00 - 15.35**	**KN 03**	**Prof. Srinivasan Natarajan** Indian Institute of Science, Bangalore ***Title****: Minerals as Future Solid-State Materials*
	15.35 - 16.05	**IT 03**	**Dr. Naonori Sakamoto** Shizuoka University, Japan ***Title:*** *Excess water vapor absorption and structure deformation of cage-structured crystal* $12Ca_{0\cdot7}Al_2O_3$
	16.05 - 16.35	**IT 09**	**Prof. Shikha Varma** Institute of Physics (IOP), Bhubaneswar ***Title****: Bioconjugation on Nanopatterned Surfaces for Biosensing: Experimental Insights and First-Principles DFT*
TP - LH 613	**15.00 - 15.35**	**KN 04**	**Prof. Ivo B. Rietveld** University of Rouen Normandy, France ***Title:*** *Vibrational Circular Dichroism and Second Harmonic Generation: Tools for Detecting Chirality and Symmetry Breaking*
	15.35 - 16.05	**IT 04**	**Dr. Mihai Irimia-Vladu** Johannes Kepler Univ. Linz, Austria ***Title****: Stability of Hydrogen-bonded Semiconductors for Organic Electronic Devices*
	16.05 - 16.35	**IT 10**	**Dr. Mangal Roy** Indian Institute of Technology, Kharagpur ***Title:*** *Degradation Customization of Degradable Metallic Biomaterials*

TP - LH 712	**15.00 - 15.35**	**KN 05**	**Prof. Birabar Ranjit Kumar Nanda** Indian Institute of Technology Madras, Chennai ***Title:*** *Generation of tunable Quantum Transport in SOC active 2D materials*
	15.35 - 16.05	**IT 05**	**Prof. Anil Kumar Singh** National Institute of Technology, Rourkela ***Title:*** *Tuning Multiferroic Properties in Y-Type Hexaferrite through Doping*
	16.05 - 16.35	**IT 11**	**Prof. De-Hao Tsai** National Tsing Hua University, Taiwan ***Title:*** *Gas-phase Electrophoresis-based Characterization for Real-time Quantifying Synthesis of Advanced Nanomaterials*
TP - LH 614	**15.00 - 15.35**	**KN 06**	**Prof.V. Kanchana** Indian Institute of Technology, Hyderabad ***Title:*** *Computational Pathways in Topological Quantum Materials and Their Device Applications: Insights from DFT*
	15.35 - 16.05	**IT 06**	**Prof. Yu-Jane Sheng** National Taiwan University, Taiwan ***Title:*** *Microstructural dynamics of stretching nanofilm of hydrogels:effects of film thickness on mechanical properties*
	16.05 - 16.35	**IT 12**	**Dr. Kei Shigematsu** Institute of Science Tokyo, Japan ***Title:*** *Domain Structure and Magnetic Reversal by Electric Field in Cobalt-substituted Bismuth Ferrite Thin Films and Nanodots*
17.00 – 19.00			**Cultural Program @ *TPGA***
19.00 - 21.00			**Conference Dinner**

Day – 2

(March 20, 2026 - Friday)

TPGA	**09.00 - 09.40**		**Plenary Lecture**
			Prof. Satishchandra B Ogale Research Institute for Sustainable Energy, Kolkata ***Title:*** *Materials and Processing Innovations for Performance Enhancements in Emergent Battery Systems*
		Parallel Session - II	
TP - LH 711	**09.55 -10.30**	**KN 07**	**Prof. Dominic Bresser** Helmholtz Institute Ulm (HIU) & Karlsruhe Institute of Technology (KIT), Germany ***Title:*** *Towards an Enhanced Understanding of the Reactivity and Morphological Evolution of Lithium-Metal Electrodes*
	10.30 - 11.05	**KN 13**	**Prof. Aninda Jiban Bhattacharyya** ICER and SSCU, Indian Institute of Science, Bengaluru ***Title****: Aqueous Batteries: Prospects and Challenges*
TP - LH 604	**09.55 -10.30**	**KN 08**	**Prof. Tanmoy Maiti** Indian Institute of Technology, Kanpur ***Title:*** *High Performance Thermoelectric Nanocomposites with 2D Graphene and MXene*
	10.30 - 11.05	**KN 14**	**Prof. Senthil Murugan Ganapathy** University of Southampton,United Kingdom ***Title:*** *Integrated Photonic Devices and AI-Driven On-Chip Spectroscopy for Rapid Biomedical Diagnostics*
TP - LH 605	**09.55 - 10.30**	**KN 09**	**Dr. Mukesh Kumar Sinha** ASL- DRDO ***Title:*** *Innovative Functional Fibrous Materials for Technical Textiles*
	10.30 - 11.05	**KN 15**	**Prof. Jun Kondoh** Shizuoka University, Japan ***Title:*** *Study of Wicking Materials for Surface Acoustic Wave Atomizer Toward Chemical Spraying Applications*

TP - LH 613	**09.55 - 10.30**	**KN 10**	**Prof. Pau-Loke Show** UCSI University, Malaysia ***Title:*** *Emerging Materials and Intelligent Processes in Microalgae Biorefinery Technology*
	10.30 - 11.05	**KN 16**	**Prof. Ying-Chih Liao** National Taiwan University, Taiwan ***Title:*** *Green Fabrication of Conductive Patterns on Eco-Friendly Substrates*
TP - LH 712	**09.55 - 10.30**	**KN 11**	**Dr. Jayakumar Balakrishnan** Indian Institute of Technology, Palakkad ***Title:*** *Thermal transport in 2D materials*
	10.30 - 11.05	**KN 17**	**Prof. Naratip Vittayakorn** Advanced Materials Research Unit (AMR), KMITL, Thailand ***Title:*** *Advanced Hybridized Nanogenerators for Multifunctional Self-Powered Systems: Synergistic Materials Design, Principles, and Sustainable Applications*
TP - LH 614	**09.55 - 10.30**	**KN 12**	**Prof. Amin Bahrami** Leibniz Institut für Festkörper und Werkstoffforschung, Germany
	10.30 - 11.05	**KN 18**	**Prof. Tomoya Ohno** Kitami Institute of Technology, Japan ***Title:*** *How to Improve the coating homogeneity on primary particles using chemical reaction and physical deposition*
TP - LH 615	**09.55 –11.05**	**Oral Presentation (OP 001 – OP 007)**	
TP - CLS 19	**09.55 –11.05**	**Young Researcher's Talk**	
11.05 - 11.20		**Tea break**	

Parallel Session – III			
TP - LH 711	**11.20 - 11.50**	**IT 13**	**Prof. Ho-Hsiu Chou** National Tsing Hua University, Taiwan ***Title:*** *Molecularly Engineered Semiconducting Polymers for Solar-Driven Hydrogen Evolution and Circular Waste Upcycling via Photoreforming*
	11.50 –12.20	**IT 19**	**Dr. Partha Saha** National Institute of Technology, Rourkela ***Title:*** *Cobalt-Free, High-Energy Ni-Rich Cathodes Enabled by Structural and Interface Engineering*
	12.20 –12.50	**IT 25**	**Dr. Shigeto Hirai** Kitami Institute of Technology, Japan ***Title:*** *Surface structure engineering of highly active and durable oxygen evolution catalysts*
TP - LH 604	**11.20 - 11.50**	**IT 14**	**Dr. Vibha Saxena** Bhabha Atomic Research Centre(BARC), Mumbai ***Title:*** *Beyond the Monolayer: Translating Langmuir-Blodgett WO_3 Assembly into Solar Cell Metrics*
	11.50 - 12.20	**IT 20**	**Prof. Hiroshi Masumoto** Tohoku University, Japan ***Title:*** *Magneto-Functional Effects in Magnetic Metal–Ceramic Nano-Granular Thin Films*
	12.20 –12.50	**IT 26**	**Dr. Koteswara Rao Peta** University of Delhi, New Delhi ***Title:*** *Metal Oxide Semiconductor Nanostructures for Energy Conversion and Energy storage Applications*
TP - LH 605	**11.20 - 11.50**	**IT 15**	**Prof. Slawomir Boncel** Silesian University of Technology, Poland ***Title:*** *From functionalization to functionality: physicochemical design principles of sp^2-carbon nanoallotropes across dimensions*
	11.50 –12.20	**IT 21**	**Prof. Naoki Wakiya** Shizuoka University, Japan ***Title:*** *Phase separation and metal-insulator transition in TiO_2-VO_2 thin films using dynamic aurora PLD*
	12.20 –12.50	**IT 27**	**Prof. Yuichi Sakumura** Nara Institute of Science and Technology (NAIST), Japan ***Title:*** *Toward Explainable Breath Analysis Using Semiconductor Sensor Arrays*

TP - LH 613	**11.20 - 11.50**	**IT 16**	**Prof. Mohamed Jouini** Univerite Paris Cite, France ***Title:*** *Electroactive and electrochromic smart organic coatings functionalized with polymer brushes*
	11.50 –12.20	**IT 22**	**Dr. Ekaterina Brodovskaya** National Research Ogarev Mordovia State University, Russia ***Title:*** *In vitro formation of 3D cell structures using magnetic nanomaterials*
	12.20 –12.50	**IT 28**	**Dr. Chia Wen Yi** Nanyang Environment & Water Research Institute (NEWRI), NTU, Singapore ***Title:*** *Resource Recovery from Seawater Reverse Osmosis (SWRO) Desalination Brine*
TP - LH 712	**11.20 - 11.50**	**IT 17**	**Prof. C. Venkateswaran** University of Madras, Chennai ***Title:*** *Magnetic Properties of $GdMnO_3$ Films on Epitaxial and Non-Epitaxial Substrates*
	11.50 –12.20	**IT 23**	**Dr. Rabindra Nath Mahato** Jawaharlal Nehru University, New Delhi ***Title:*** *X-ray Photoelectron Spectroscopy and Critical Exponent Study of Nanocrystalline $Pr_{0.7-x}Y_xBa_{0.3}MnO_3$ ($x = 0$, 0.05 and 0.1)*
	12.20 –12.50	**IT 29**	**Prof. M. M. Shaijumon** Indian Institute of Science Education and Research, Trivandrum ***Title:*** *Engineering Metal Anodes for High-rate Solid-state Batteries*
TP - LH 614	**11.20 - 11.50**	**IT 18**	**Prof. Yuki Maruno** Kansai University, Japan ***Title:*** *Deep Learning–Based Screening for Sarcopenic Dysphagia to Support Clinical Decision Making*
	11.50 - 12.20	**IT 24**	**Prof. Paul Joseph** National Institute of Technology, Warangal ***Title:*** *Thin Film Electrodes for Photo-degradation of pollutants and Power Generation in Microbial Fuel Cells – Doping and Coating Strategies*
	12.20 –12.50	**IT 30**	**Prof. Daniel Moraru** Shizuoka University, Japan ***Title:*** *Probing Dopant-Induced Quantum Structures by Tunneling Spectroscopy in Silicon Nanodevices*

TP - LH 615	**11.20 –12.50**	**Oral Presentation (OP 008 – OP 016)**	
TP - CLS 19	**11.20 –12.50**	**Young Researcher's Talk**	
12.50 – 14.00		**Lunch Break**	
INAUGURATION CEREMONY (VENUE: TPGA)			
14.00 – 14.45		**Inauguration and Award Ceremony**	
TPGA	**14.45– 15.25**	**Distinguished Plenary Lecture**	
		Prof. Kanishka Biswas Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru ***Title:*** *Phonon-Glass Electron-Crystal like High Performance Thermoelectrics*	
15.25 – 15.45		**Tea Break**	
Parallel Session - IV			
TP - LH 711	**15.45 –16.20**	**KN 19**	**Prof. Ravichandar Babarao** RMIT, Australia ***Title:*** *Accelerating Materials Discovery for Clean Energy and Environmental Application: Integrating Simulations and Experiments*
	16.20 - 16.50	**IT 31**	**Dr. M. Saravanan** CSIR-National Physical Laboratory, New Delhi ***Title****: Cost-effective reference materials development using spark plasma sintering for thermoelectric applications*
TP - LH 604	**15.45 –16.20**	**KN 20**	**Prof. Rougier Aline** Institut de Chimie de la Matière Condensée de Bordeaux, France ***Title:*** *Towards Thin Films Advanced Deposition for Improved Electrochromic Properties*
	16.20 - 16.50	**IT 32**	**Dr. S Ganesamoorthy** Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam ***Title:*** *Detector Grade CdZnTe Single Crystals for Room Temperature Gamma-ray Detector Applications*
TP - LH 605	**15.45 –16.20**	**KN 21**	**Prof. Mei- Jywan Syu** National Cheng Kung University, Taiwan ***Title:*** *Proposing an Imprinted Poly(2-vinyl-4-nitroaniline) Modified Electrode for Differential Pulse Voltammetry Detection of Urinary Uric Acid*
	16.20 - 16.50	**IT 33**	**Prof. Masanori Koshimizu** Shizuoka University, Japan ***Title:*** *Development of Plastic Scintillators Having Fast Response Using Perovskite Quantum Dots*

TP - LH 613	**15.45 –16.20**	**KN 22**	**Prof. Awadhesh Mani** Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam ***Title:*** *Comparative studies on some novel quantum systems at extreme pressures and magnetic fields*
	16.20 - 16.50	**IT 34**	**Dr. Jevgenijs Kaupužs** Riga Technical University, Latvia ***Title:*** *Finite-Difference Steepest Descent (FDSD) Method for Modeling Light Propagation in Structures with Metal Nanoparticles*
TP - LH 712	**15.45 –16.20**	**KN 23**	**Prof. S. Balakumar** University of Madras, Chennai ***Title:*** *A Dual Bioceramic Strategy for Integrated Bone and Wound Regeneration Using Hydroxyapatite and Bioactive Glass Systems*
	16.20 - 16.50	**IT 35**	**Prof. Tetsu Yonezawa** Hokkaido University, Japan ***Title:*** *Low-Temperature Sintering Copper Particle Technology - Figure Joining and Conductive Materials for Semiconductor Industry*
TP - LH 614	**15.45 –16.20**	**KN 24**	**Prof. Kazushi Ikeda** Nara Institute of Science and Technology (NAIST), Japan ***Title:*** *Topological Data Analysis for Materials Informatics*
	16.20 - 16.50	**IT 36**	**Dr. A. Mercy Latha** CSIR-Central Electronics Engineering Research Institute, Chennai ***Title:*** *Terahertz Spectroscopic and Imaging of Composite Materials*
TP - LH 615	**15.45 –16.50**	**Oral Presentation (OP 017 – OP 022)**	
TP - CLS 19	**15.45 –16.50**	**Young Researcher's Talk**	
17.00 - 19.00		**Cultural Program**	
19.00 - 21.00		**Conference Dinner**	

Day – 3

(March 21, 2026 - Saturday)

<table>
<tr><td rowspan="2">TPGA Mini Hall 01</td><td rowspan="2">09.00 – 09.40</td><td colspan="2">Plenary Lecture</td></tr>
<tr><td colspan="2">Prof. R. Murugavel
Indian Institute of Technology Bombay, Mumbai
Title: Role of Metal Phosphates in Energy Transition</td></tr>
<tr><td>TPGA Mini Hall 02</td><td colspan="3">Prof. Tapas Kumar Maji
Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru
Title: Developing Photocatalyst by Post-Synthetic Modification Metal-Organic Frameworks</td></tr>
<tr><td colspan="5">Parallel Session – V</td></tr>
<tr><td rowspan="2">TP - LH 711</td><td>09.50 –10.25</td><td>KN 25</td><td colspan="2">Dr. Sudakar Chandran
Indian Institute of Technology Madras, Chennai
Title: Engineering Halide Perovskites for Photonic and Optoelectronic Applications</td></tr>
<tr><td>10.25 – 10.55</td><td>IT 37</td><td colspan="2">Prof. Maheswaran Shanmugam
Indian Institute of Technology Bombay, Mumbai
Title: Molecular based Magnetoelectric Materials for Sustainable Energy Harvesting</td></tr>
<tr><td rowspan="2">TP - LH 604</td><td>09.50 –10.25</td><td>KN 26</td><td colspan="2">Prof. Judy Wu
University of Kansas, USA
Title: Designing advanced quantum dots/graphene broadband photodetectors</td></tr>
<tr><td>10.25 – 10.55</td><td>IT 38</td><td colspan="2">Prof. Vincent K.S. Hsiao
National Chi Nan University, Taiwan
Title: Fluorescence Anisotropy and Chiroptical Luminescence: From Anisotropic Photoluminescence Probing to Cholesteric Liquid Crystal Control</td></tr>
<tr><td rowspan="2">TP - LH 605</td><td>09.50 –10.25</td><td>KN 27</td><td colspan="2">Prof. Govind Gupta
CSIR-National Physical Laboratory, New Delhi
Title: Two-Dimensional Metal Chalcogenides: Exploring Exciting Opportunities for Neuromorphic Computing</td></tr>
<tr><td>10.25 – 10.55</td><td>IT 39</td><td colspan="2">Dr. Srabanti Ghosh
CSIR - Central Glass and Ceramic Research Institute, Kolkata
Title: Structure–Function Modulation in Semiconductor Heterostructures for Efficient Solar Fuel Production</td></tr>
</table>

TP - LH 613	**09.50 –10.25**	**KN 28**	**Prof. Chien-Hsiang Chang** National Cheng Kung University, Taiwan ***Title:*** *Modulating Physical Properties and Enhancing stability of Catanionic Vesicles Using Fatty Acid Additives*
	10.25 – 10.55	**IT 40**	**Prof. Ratno Nuryadi** BRIN, Indonesia ***Title:*** *MEMS Microcantilever Sensors Functionalized with ZnO Nanorods for High-Sensitivity Gas Detection*
TP - LH 712	**09.50 –10.25**	**KN 29**	**Prof. Anjan Barman** S. N. Bose National Centre for Basic Sciences, Kolkata ***Title****: Hybrid interface for Magnonics: A quantum technology platform*
	10.25 – 10.55	**IT 41**	**Dr. Binoy Krishna Hazra** Indian Institute of Technology, Guwahati ***Title:*** *Non-collinear antiferromagnets for spintronic applications*
TP - LH 614	**09.50 –10.25**	**KN 30**	**Dr. Suresh Sundaram** Georgia Tech, France ***Title:*** *Layered boron nitride and its III-nitride heterostructures*
	10.25 – 10.55	**IT 42**	**Prof. Keun Heo** Jeonbuk National University, South Korea ***Title****: Van der Waals and Ferroelectric polymer based Artificial Neural Devices for Neuromorphic Applications*
TP - LH 615	**09.50 –10.25**	**KN 31**	**Dr. Vanchiappan Aravindan** Indian Institute of Science Education and Research, Tirupati ***Title:*** *Na-ion Batteries via Solvent-co-Intercalation*
	10.25 – 10.55	**IT 43**	**Dr. Amarnath R Allu** CSIR - Central Glass and Ceramic Research Institute, Kolkata ***Title:*** *Reactive Glass Metal Interaction under Ambient Conditions Enables Surface Modification of Gold Nano-island*

TP - LH 606	**09.50 – 10.55**	**Oral Presentation (OP 023 - OP 028)**	
TP - CLS 19	**09.50 – 10.55**	**Oral Presentation (OP 029 - OP 034)**	
10.55 – 11.15		**Tea Break**	
Parallel Session – VI			
TP - LH 711	**11.15 - 11.45**	**IT 44**	**Prof. Chandra S Sharma** Indian Institute of Technology, Hyderabad ***Title:*** *From Earth to Mars: Pioneering Metal-Carbon Dioxide (Metal-CO_2) Battery Solutions for a Greener Tomorrow*
	11.45 - 12.15	**IT 51**	**Prof. Atsushi Nakamura** Shizuoka University, Japan ***Title:*** *Development of an electron beam–pumped, localized surface plasmon–enhanced nanoscale light source for electron-beam–assisted optical microscopy*
	12.15 - 12.45	**IT 58**	**Dr. Chinmoy Ranjan** Indian Institute of Science, Bengaluru ***Title:*** *Solid oxide electrolysis of CO_2 : Power to X*
TP - LH 604	**11.15 – 11.45**	**IT 45**	**Dr. Bruce (Jun-Yu) Ou** University of Southampton, United Kingdom ***Title:*** *Nanomechanical metamaterials and multifunctional metalenses*
	11.45 - 12.15	**IT 52**	**Prof. Svitlana Bugaychuk** University of Lille, France ***Title:*** *Surface-induced photorefractive effect (SIPRE) in liquid crystal nanocomposites for applications in fast switchable devices*
	12.15 - 12.45	**IT 59**	**Dr. Tomoki Maeda** Ibaraki University, Japan ***Title:*** *Quantum Beam Approaches to Advanced Functional Polymer Composites*
TP - LH 605	**11.15 – 11.45**	**IT 46**	**Dr. Shintaro Yasui** Institute of Science Tokyo, Japan ***Title:*** *Water-based Solid Battery using 3D-Slime Interface quasi-Solid Electrolyte (3D-SLISE)*
	11.45 - 12.15	**IT 53**	**Prof. Tadachika Nakayama** Nagaoka University of Technology, Japan ***Title:*** *Application of Pulsed Electric Fields in Inorganic Materials Science*
	12.15 - 12.45	**IT 60**	**Dr. Arup Dasgupta** Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam ***Title:*** *Application of Probe Aberration Corrected STEM techniques in understanding some fascinating features of melt-cast $(Fe,Cr)_2B$*

TP - LH 613	**11.15 – 11.45**	**IT 47**	**Prof. Bing -Hung Chen** National Cheng Kung University, Taiwan ***Title:*** *Utilizing CO_2 for Synthesis of Organic Carbonates via Direct Carbonylation of Glycerol*
	11.45 - 12.15	**IT 54**	**Dr. Jitendra Bahadur** Bhabha Atomic Research Centre(BARC), Mumbai ***Title:*** *Complex interactions driven assembly in the multi-component colloids: Insights from synchrotron SAXS*
	12.15 - 12.45	**IT 61**	**Dr. Kazuo Shimizu** Shizuoka University, Japan ***Title:*** *From Reactive-Species Composition to Function: A Design Framework for Non-Ablative, Reversible Biointerface Modulation*
TP - LH 712	**11.15 – 11.45**	**IT 48**	**Dr. Swarup Deb** Saha Institute of Nuclear Physics, Kolkata ***Title:*** *Excitonic Signature of 2D Sliding/Interfacial/Moiré Ferroelectrics*
	11.45 - 12.15	**IT 55**	**Prof. Pranaba Kishor Muduli** Indian Institute of Technology, Delhi ***Title:*** *Spintronics using 2D materials*
	12.15 - 12.45	**IT 62**	**Prof. Md. Ehesan Ali** Institute of Nano Science and Technology, Mohali ***Title:*** *Quantum spin sensors for open-shell molecules*
TP - LH 614	**11.15 – 11.45**	**IT 49**	**Prof. Chi-Cheng Chiu** National Cheng Kung University, Taiwan ***Title:*** *Modulation of the Interfacial Lithium-Ion Transport within Lithium Ion Batteries:Insights from Multi-Scale Simulations*
	11.45 - 12.15	**IT 56**	**Dr. Arnab Bose** Indian Institute of Technology, Kanpur ***Title:*** *Generation and detection of orbital currents*
	12.15 - 12.45	**IT 63**	**Dr. Sakura Takeda** Nara Institute of Science and Technology (NAIST), Japan ***Title:*** *Deriving Interface Physics from Correlations Between Electrical Properties and XPS in PECVD-SiO_2/Si*

TP - LH 615	**11.15 – 11.45**	**IT 50**	**Prof. Heng-Kwong Tsao** National Central University, Taiwan ***Title:*** *High-strength Poly(vinyl alcohol) Physical Eutectogels: Effects of polymer molecular weight, DES composition, and heat treatment*
	11.45 - 12.15	**IT 57**	**Prof. Chang Hee Hong** Jeonbuk National University, South Korea ***Title:*** *InGaN LED Technology Trends for Agriculture and Bio-industry Applications: From Spectral Engineering to Van der Waals Epitaxy*
	12.15 - 12.45	**IT 64**	**Dr. Hiroki Kase** Shizuoka University, Japan ***Title:*** *Representation of 3D X-ray CT Using Mixed Reality with Force Feedback for Density Information*
TP - LH 606	**11.15 – 12.45**	**Oral Presentation (OP 035 - OP 043)**	
TP - CLS 19	**11.15 – 11.45**	**Special Talk**	**Prof. Mitsuhiro Fukuta** Shizuoka University, Japan
	11.45 - 12.15		**Prof. Dmitrijs Stepanovs** Riga Technical University, Latvia
	12.15 - 12.45		**Industrial Talk**
12.45 - 14.00		**Lunch Break**	
Parallel Session - VII			
TP - LH 711	**14.00 – 14.35**	**KN 32**	**Prof. Tharamani C. Nagaiah** Indian Institute of Technology, Ropar ***Title:*** *Designing greener energy conversion system for a sustainable future*
	14.35 – 15.05	**IT 65**	**Prof. Tomoaki Yamada** Nagoya University, Japan ***Title:*** *Domain Engineering of Ferroelectric Nano-structures and Their piezoelectric properties*
TP - LH 604	**14.00 – 14.35**	**KN 33**	**Prof. Toru Aoki** Shizuoka University, Japan ***Title:*** *Impact of Carbon Doping and Device Structure on the X-ray Response of GaN Detectors*
	14.35 – 15.05	**IT 66**	**Prof. Hiromasa Shimizu** Tokyo University of Agriculture & Technology, Japan ***Title:*** *Sensing experiments based on collaborative research activities in Tokyo University of Agriculture and Technology*

TP - LH 605	**14.00 – 14.35**	**KN 34**	**Prof. Harri Lipsanen** Aalto University, Finland ***Title**: Broadband miniaturized spectrometers with van der Waals junctions*
	14.35 – 15.05	**IT 67**	**Dr. Madhurya Chandel** Warsaw University of Technology, Poland ***Title:** Exploring MBene: 2D Materials Pathways in Synthesis and Characterization for Optoelectronics devices*
TP - LH 613	**14.00 – 14.35**	**KN 35**	**Prof. Yoshimasa Kawata** Shizuoka University, Japan ***Title:** Live Cell Imaging and Cell Stimulations with Direct Electron-Beam Excitation Assisted Microscopy*
	14.35 – 15.05	**IT 68**	**Prof. Ionut Topala** Alexandru Ioan Cuza University Lasi, Romania ***Title:** Measurement of hydrogen to carbon ratio in amorphous hydrogenated carbon products and the effect ion irradiation*
TP - LH 712	**14.00 – 14.35**	**KN 36**	**Prof. Yogendra Kumar Mishra** Mads Clausen Institute, University of Southern Denmark, Denmark ***Title:** Tetrapods based Advanced Materials for Advanced Technologies*
	14.35 – 15.05	**IT 69**	**Dr. Kaushalya Jhuria** Indian Institute of Technology, Delhi ***Title:** Telecom band silicon based optical defects for quantum technologies*
TP - LH 614	**14.00 – 14.35**	**KN 37**	**Prof. Benoît Piro** Université Paris Cité, France ***Title:** An Innovative Printed Device for Sensing of Exhaled Gas*
	14.35 – 15.05	**IT 70**	**Prof. K.G. Suresh** Indian Institute of Technology, Bombay ***Title:** Heusler alloys as spintronic and spin-caloritronic applications*
TP - LH 615	**14.00 – 14.35**	**KN 38**	**Dr. Tetsuo Kodera** Tokyo Institute of Technology, Tokyo ***Title:** Progress and prospects in research of semiconductor spin qubit devices toward quantum computers*
	14.35 – 15.05	**IT 71**	**Prof. Felicia Iacomi** Alexandru Ioan Cuza University, Romania ***Title:** Studies on the structure and functional properties of some nanocomposite layers based on graphene and graphene oxide*

TP - LH 606	**14.00 – 15.05**	**Oral Presentation (OP 044 - OP 049)**
TP - CLS 19	**14.00 – 15.05**	**Oral Presentation (OP 050 - OP 055)**
Parallel Session – VIII		
TP - LH 711	**15.05 – 16.15**	**Oral Presentation (OP 056 - OP 062)**
TP - LH 604		**Oral Presentation (OP 063 - OP 069)**
TP - LH 605		**Oral Presentation (OP 070 - OP 076)**
TP - LH 613		**Oral Presentation (OP 077- OP 083)**
TP - LH 712		**Oral Presentation (OP 084 - OP 090)**
TP - LH 614		**Oral Presentation (OP 091 - OP 097)**
TP – LH 615		**Oral Presentation (OP 098 - OP 104)**
TP - LH 606		**Oral Presentation (OP 105 - OP 111)**
TP - CLS 19		**Oral Presentation (OP 112 - OP 118)**
16.15 – 16.30		**Tea Break**
TPGA	**16.30 – 18.00**	**POSTER SESSION**
18.30 – 21.30		**Banquet Dinner**

Day – 4

(March 23, 2026 - Monday)

TPGA	8.30 – 10.00	POSTER SESSION	
Parallel Session - IX			
TP - LH 711	10.00 – 11.10	Oral Presentation (OP 119 - OP 125)	
TP - LH 604		Oral Presentation (OP 126 - OP 132)	
TP - LH 605		Oral Presentation (OP 133 - OP 139)	
TP - LH 613		Oral Presentation (OP 140 - OP 146)	
TP - LH 712		Oral Presentation (OP 147 - OP 153)	
TP - LH 614		Oral Presentation (OP 154 - OP 160)	
TP - LH 615		Oral Presentation (OP 161 - OP 167)	
TP – LH 606		Oral Presentation (OP 168 - OP 174)	
TP - CLS 19		Oral Presentation (OP 175 - OP 180)	
11.10 – 11.30		Tea Break	
Parallel Session - X			
TP - LH 711	11.30 – 12.05	KN 39	**Prof. Ramesh Chandra Mallik** Indian Institute of Science, Bangalore ***Title***: *Improved Thermoelectric Figure of Merit in Cu_2Se Material*
	12.05 – 12.35	IT 72	**Dr. Vivek Kumar** Indian Institute of Information Technology Design & Manufacturing, Kancheepuram ***Title***: *2D Materials for High performance Hybrid supercapacitors*

TP - LH 604	**11.30 – 12.05**	**KN 40**	**Prof. Somobrata Acharya** Indian Association for the Cultivation of Science (IACS), Kolkata ***Title**: Dimension Controlled Ferroelectricity and Bulk Photovoltaic Effect in $CsPbBr_3$ Perovskite Nanocrystals*
	12.05 – 12.35	**IT 73**	**Dr. Arup Samanta** Indian Institute of Technology, Roorkee ***Title**: High Temperature Quantum Transport using deep dopant in Silicon*
TP - LH 605	**11.30 – 12.05**	**KN 41**	**Dr. M. Sathish** Central Electrochemical Research Institute, Karaikudi ***Title**: Functionalized Carbon-based Materials for Rechargeable Zinc-Air Batteries*
	12.05 – 12.35	**IT 74**	**Dr. Srinivasan Anandan** International Advanced Research centre for Powder Metallurgy & New Materials (ARCI), Hyderabad ***Title:** Development of Indigenous Electrode Materials for Li- and Na-Ion Batteries: From Lab-Scale Innovation to Technology Demonstration*
TP - LH 613	**11.30 – 12.05**	**KN 42**	**Prof. Suhrit Ghosh** Indian Association for the Cultivation of Science (IACS), Kolkata ***Title**: Supramolecular Assembly of Donor-Acceptor (Macro)molecular Systems for Low-Power Energy Harvesting*
	12.05 – 12.35	**IT 75**	**Dr. Goutam Ghosh** Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru ***Title:** Peptide-Based Nanomaterials for Organic Electronics: Tailoring Piezoelectric Properties through Nanostructural and Chiroptical Modulation*
TP - LH 712	**11.30 – 12.05**	**KN 43**	**Prof. Shaikh M Mobin** Indian Institute of Technology, Indore ***Title**: Crystal Engineered MOFs and Interfacial Chemistry for Next Generation Ammonium Ion Sustainable Energy Storage Devices*
	12.05 – 12.35	**IT 76**	**Dr. Ashutosh Kumar Singh** Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru ***Title**: Efforts Toward Developing High-Performance Aqueous Rechargeable Zn-Ion Batteries*

TP - LH 614	**11.30 – 12.05**	**KN 44**	**Prof. Rajesh Kumar** Indian Institute of Technology, Indore ***Title**: Electrochromic materials and device: smart windows for multifunctional applications*
	12.05 – 12.35	**IT 77**	**Dr. Pritam Sadhukhan** Indian Association for the Cultivation of Science (IACS), Kolkata ***Title:** Stimuli-Responsive Molecular Systems for Nanoscale Energy Harvesting Prospects*
TP – LH 615	**11.30 – 12.05**	**KN 45**	**Prof. Dipak Kumar Goswami** Indian Institute of Technology, Kharagpur ***Title:** Flexible OFET Platforms for Secure and Affordable Diagnostics: From Synaptic Phototransistors to Wearable Sensors*
	12.05 – 12.35	**IT 78**	**Dr. Rana Saha** Indian Institute of Science Education and Research, Tirupati ***Title:** Topological spin textures in van der Waals magnets*
TP - LH 606	**11.30 – 12.35**	**Oral Presentation (OP 181 - OP 187)**	
TP - CLS 19	**11.30 – 12.05**	**Young Researcher's Talk**	
	12.05 – 12.35	**IT**	**Prof. Rajan Jha** Indian Institute of Technology, Bhuvaneshwar ***Title:** Fiber Cavity: A Versatile System for Sensing and Quantum Technology*
12.35 – 14.00		**Lunch Break**	
Parallel Session - XI			
TP - LH 711	**14.00 – 14.35**	**KN 46**	**Prof. C Subramaniam** Indian Institute of Technology, Bombay ***Title:** Nanostructured carbons for bottling and utilizing sunlight for sustainable energy and environemental applications*
	14.35 – 15.05	**IT 79**	**Prof. Masato Nakaya** Nagoya University, Japan ***Title:** Thermoelectric Properties of Nanocluster Composites consisting of Fullerene Molecules and Metal Oxide Nanoclusters*
	15.05 – 15.35	**IT 87**	**Dr. Manas K Panda** Jadavpur University, Kolkata ***Title:** Stimuli-Responsive Soft Molecular Materials*

TP - LH 604	**14.00 – 14.35**	**KN 47**	**Prof. Riabochkina Polina** National Research Mordovia State University, Russia ***Title:*** *Optical laser ceramics for solid-state lasers in the two-micron spectral range*
	14.35 – 15.05	**IT 80**	**Dr. Chao-Wei Huang** National Cheng Kung University, Taiwan ***Title:*** *MOFs-derived and Chitosan-based Photocatalysts for Scalable VOCs Degradation in Photocatalytic Fluidized Beds*
	15.05 – 15.35	**IT 88**	**Prof. Sergei Gushchin** National Research Mordovia State University, Russia ***Title:*** Upconversion luminescence of SrF_2-ErF_3 solid solutions
TP - LH 605	**14.00 – 14.35**	**KN 48**	**Dr. Takeshi Maeda** Osaka Metropolitan University, Japan ***Title:*** *Impact of Intermediate Diradical Character on Optical and Magnetic Properties in Croconaine Dyes*
	14.35 – 15.05	**IT 81**	**Prof. Makiko Kobayashi** Kumamoto University, Japan ***Title:*** *Design of Sol–Gel Composite Materials for High-Temperature Ultrasonic/Piezoelectric Devices*
	15.05 – 15.35	**IT 89**	**Prof. Kitani Tomoya** Shizuoka University, Japan ***Title:*** *A Proposal for Infrastructure Management Using Motorcycle Dynamics Data and Rider Vital Signals*
TP - LH 613	**14.00 – 14.35**	**KN 49**	**Prof. Mathieu Etienne** LCPME-CNRS-UNIVERSITE DE LORRAINE, France ***Title:*** *Materials Development and Characterization for Redox Flow Technologies*
	14.35 – 15.05	**IT 82**	**Dr. Mani Ulaganathan** Amrita Vishwa Vidyapeetam, Coimbatore ***Title:*** *Redox Flow Batteries for Large Scale Energy Storage Application*
	15.05 – 15.35	**IT 90**	**Dr. Bharati Debnath** Research Institute for Sustainable Energy (RISE), TCG CREST, Kolkata ***Title:*** *Design of Electrodeposition-Driven Phosphide Catalysts for Green Hydrogen and Ammonia Synthesis*

TP - LH 712	**14.00 – 14.35**	**KN 50**	**Prof. Abdelmajid Taki** University of Lille, France ***Title:*** *Characterization of complex dynamics in a chain of plasmonic nanoparticles*
	14.35 – 15.05	**IT 83**	**Prof. Hiroya Ikeda** Shizuoka University, Japan ***Title:*** *Seebeck-Coefficient Evaluation of Si Microribbon by Kelvin-Probe Force Microscopy*
	15.05 – 15.35	**IT 91**	**Dr. Miki Mochizuki** Shizuoka University, Japan ***Title:*** *Toward a Resilient Society: Dialogue between Engineering and the Social Sciences in Disaster Contexts*
TP - LH 614	**14.00 – 14.35**	**KN 51**	**Prof. Anatoly Lysyakov** National Research Mordovia State University, Russia ***Title:*** *Interaction between Universities and Industry: The Case of National Research Mordovia State University*
	14.35 – 15.05	**IT 84**	**Prof. Yueh-Heng Li** National Cheng Kung University, Taiwan ***Title:*** *A Traceable Digital Thread for UAV Propulsion: MBSE Architecture Linked with Performance Simulation*
	15.05 – 15.35	**IT 92**	**Dr. Yasuhide Mochizuki** Institute of Science Tokyo, Japan ***Title:*** *Theoretical Study of Phonon-Induced Negative Thermal Expansion Materials*
TP - LH 615	**14.00 – 14.35**	**KN 52**	**Prof. Indranil Sarkar** Institute of Nano Science and Technology, Mohali ***Title:*** *Unraveling interface physics of ferromagnet/nonmagnet heterostructures for development of efficient spin orbit torque applications*
	14.35 – 15.05	**IT 85**	**Prof. Tamihiro Gotoh** Gunma University, Japan ***Title****: Bandgap widening of evaporated In-Se films by room temperature annealing*
	15.05 – 15.35	**IT 93**	**Dr. Tetsushi Ohki** Shizuoka University, Japan ***Title****: The Expanding Attack Surface of AI-Enabled Biometric Infrastructures*

TP - LH 606	**14.00 – 14.35**	**KN 53**	**Prof. Sebastian Lourdudoss** KTH-Royal Institute of Technology, Sweden ***Title:*** *Heteroepitaxial structures and high growth rate of semi-insulating InP for buried heterostructure quantum cascade lasers by hydride vapour phase epitaxy*
	14.35 – 15.05	**IT 86**	**Prof. Rodrigo Ferrao Paiva Martins** NOVA University Lisbon and CEMOP/UNINOVA, Portugal ***Title:*** *Transforming Electronics: The Future of Transparent and Paper Electronics*
	15.05 – 15.35	**IT 94**	**Prof. A. M. Jastrzębska** Warsaw University of Technology, Poland ***Title:*** *Effect of tandem-type stabilization of two-dimensional (2D) Nb_2CTx MXene on their colloidal and cytotoxic properties*
TP - CLS 19	**14.00 – 15.35**	**Young Researcher's Talk**	
TPGA	**15.35 – 16.30**	**Award Distribution and Valedictory Ceremony**	
16.30 – 16.45		**Tea Break**	

Day – 5

(March 24, 2026 - Tuesday)

09.00 – 17.00	**Collaborative Discussion Meeting and Research Facility Visit**

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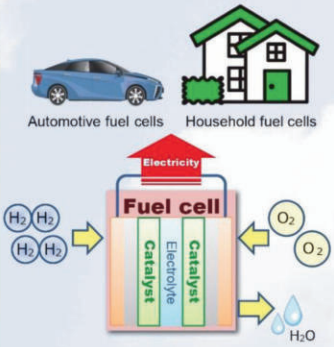
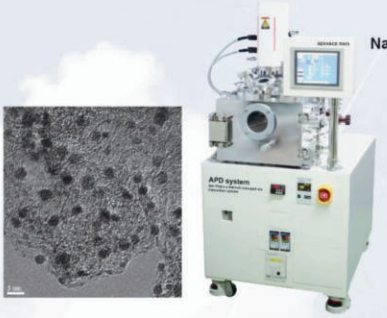


Exploration of catalytic nanoparticles

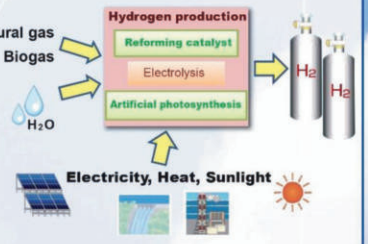


TEM image of Pt nanoparticles supported on carbon powder

Uniformly vapor-deposited onto rough carbon surface.

Hydrogen-producing catalysts

Formation of hydrogen-producing catalyst from nanoparticles



Catalyst for use with organic hydrides

Size-controlled nanoparticles using ionic liquid

Photocatalysts

Improve the performance of photo catalyst which manufactures hydrogen

Creation of materials having new properties

Creation of substances having new functions by simultaneously vapor-depositing different metals from multiple sources

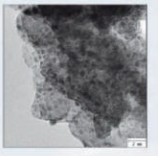
Arc-plasma source APS-1

Exhaust gas catalysts

High catalytic activity of nanoparticles reduces usage of expensive noble metals

Control of greenhouse gas emissions

Support of Pt nanoparticles on alumina powder



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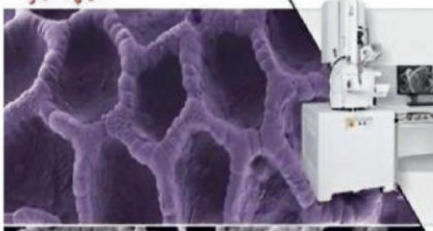

STEP INTO THE WORLD OF JEOL

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TEM
SAMPLE PREP
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MASS SPEC
EPMA
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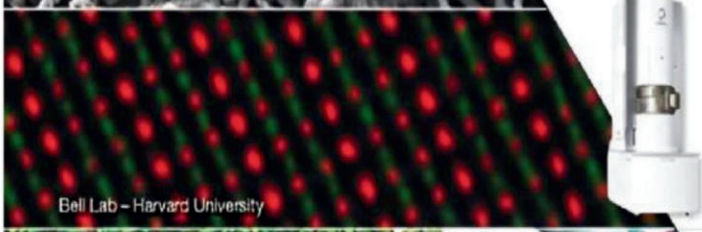

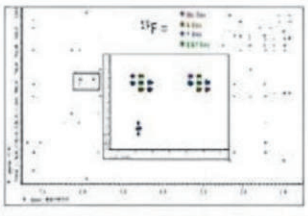

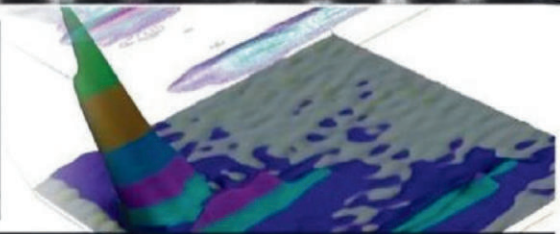

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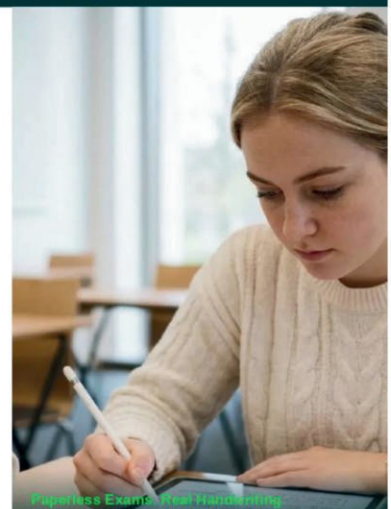

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Dinesh Kumar
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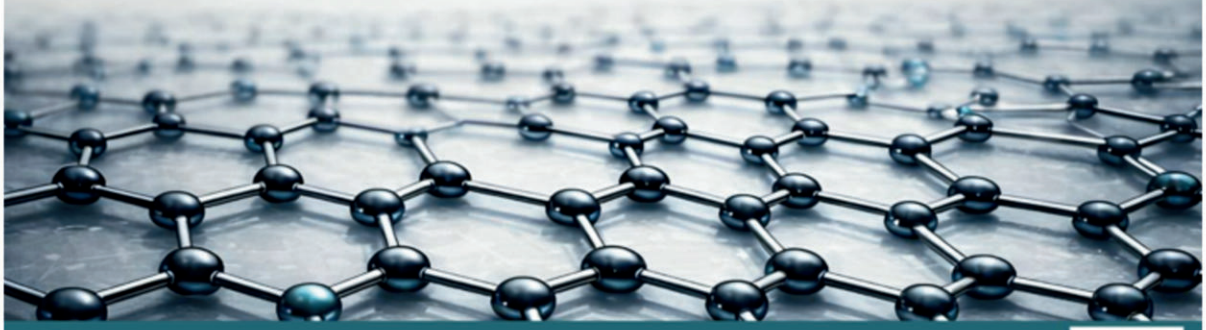

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SCAN ME

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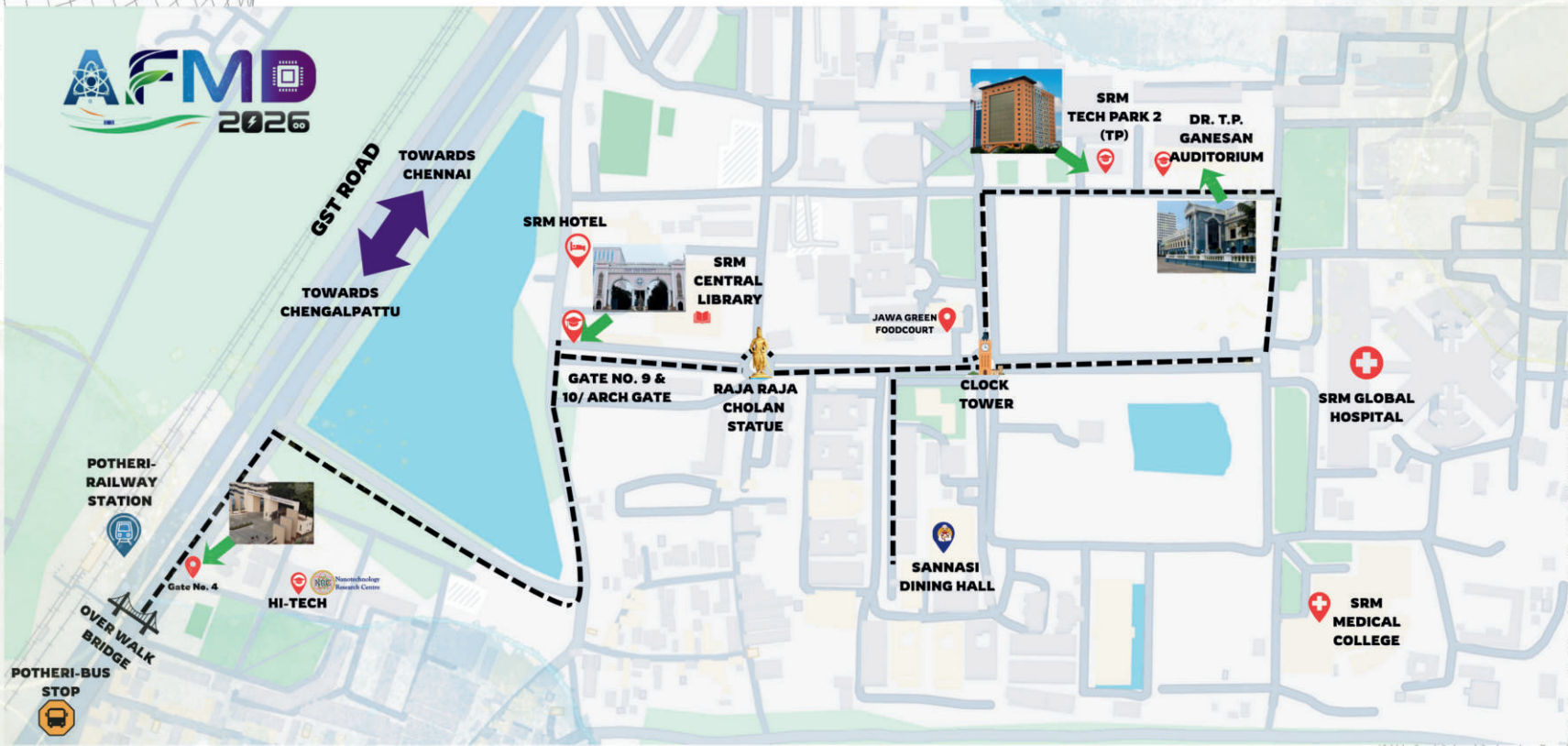
ORGANIZING TEAM

ROUTE MAP TO AFMD 2026 VENUES



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