

7th National Workshop on Materials Chemistry

SPC-MAT

Structure - Property Correlation in Materials



BHABHA ATOMIC
RESEARCH CENTRE



BOARD OF RESEARCH IN
NUCLEAR SCIENCES

Programme Schedule

November 20-22, 2025

Venue

DAE Convention Centre
Anushaktinagar, Mumbai-400094, India

Organized by

Chemistry Division
Bhabha Atomic Research Centre,
Mumbai - 400085, India

&

Society for Materials Chemistry, India

Supported by

Board of Research in Nuclear Sciences
Department of Atomic Energy,
Government of India

NWCMC-2025



NWMC-2025 (DAY -1)

November 20, 2025 (Thursday)

Inaugural Session (9:30 - 10:45)	<i>Welcome Address:</i> <i>About NWMC:</i> <i>About SMC:</i> <i>Speech by Chief Guest:</i> <i>Vote of Thanks:</i>	Dr. N. Choudhury , Co-Chairman, NWMC - 2025 Dr. V. Sudarsan , Co-Chairman, NWMC-2025 Dr. A. K. Tyagi , President, SMC and Chairman NWMC -2025 Dr. A. Kakodkar , Chancellor, Homi Bhabha National Institute Former Chairman, AEC and Secretary, DAE Dr. Pramod Sharma , Convenor, NWMC - 2025
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Tea: 10:45-11:00

Session -1 (11:00-12:00)	<i>Session Chair:</i> Dr. N. Choudhury, Head, ChD, BARC
	Structure-electrical property correlation in solids with emphasis on dielectric/ferroelectric properties (30 min) <i>R. Nagarajan, University of Delhi, Delhi</i>
Session-2 (12:00 - 13:00)	Principles of spectroscopic and liquid chromatographic analytical instruments and their application for production of Certified Reference Materials (CRMs) (30 min) <i>Dr. Kulamani Dash, NCCCM, BARC</i>
	<i>Session Chair:</i> Shri Probal Chaudhury, Associate Director, HS&EG
	f-f-like d-d transition of Mo(III)-doped perovskites for NIR emission (30 min) <i>Prof. Angshuman Nag, IISER-Pune</i>
	Magnetic structure characterization over different length scales (30 min) <i>Dr. Surendra Singh, BARC</i>

Lunch (13:00 to 14:00 h)

Session-3 (14:00-15:00)	<i>Session Chair: Dr. V. Sudarsan, RPCD, BARC</i>
	'Layered' transition metal oxides as electrode materials for Na-ion batteries: Structural aspects - Environmental stability - Electrochemical behaviour/performance (30 min) <i>Prof. Amartya Mukhopadhyay, IIT Bombay</i>
	Development of thermoelectric generator (TEG) (30 min) <i>Dr. Shovit Bhattacharyya, BARC</i>
Session-4 (15:00-16:00)	<i>Session Chair: Dr. Sangita D Kumar, BARC</i>
	Material marvels: How glass transformed the modern world (30 min) <i>Prof. Atiar Rahaman Molla, CGCRI, Kolkata</i>
	Tuning the ligand structure and materials for the separation of targeted 'f' block metal ions (30 min) <i>Dr. Arunasis Bhattacharyya, BARC</i>
Tea (16:00 to 16:15 h)	
Session-5 (16:15-18:15)	<i>Session Chair : Dr. Rajesh Pai & Dr. S. Nath, BARC</i>
	Characterization of material by diffraction methods (30 min) <i>Dr. S. N. Achary, BARC</i>
	Microstructural characterization of materials using transmission electron microscopy (30min) <i>Dr. B Vishwanadh, BARC</i>
	Designing materials for hydrogen-related applications: Storage and Transportation (30min) <i>Dr. Seemita Banerjee, BARC</i>

	Atomic-scale structure–property correlations in alloys: linking atom probe tomography to hardness and magnetic response (30 min) <i>Dr. Sarita Ahlawat, BARC</i>
Tea (18:15 to 18:30 h)	
Evening Lecture (18:30-19:30)	Session Chair: Dr. A. C. Bhasikuttan, Associate Director, CG
	Structure-property correlation in materials science <i>Dr. A. K. Tyagi, Dean, HBNI</i>
Dinner (20:00 to 21:00 h)	

NWMC-2025 (DAY -2)

November 21, 2025 (Friday)

Session -6 (9:30-10:50)	Session Chair: Dr. Y. K. Bharadwaj, Associate Director, RC&IG, BARC
	Microdroplet mechanochemistry (30 min) <i>Prof. T. Pradeep, IIT Chennai (SMC Gold Medal)</i>
	Materials engineering vis-à-vis devices and device physics (30 min) <i>Prof. A. J. Pal, IACS, Kolkata (SMC Gold Medal)</i>
	Applications of carbon monoxide in the organic synthesis (20 min) <i>Prof. B.M. Bhanage, ICT Matunga (SMC Silver Medal)</i>
Tea (10:50 to 11:10 h)	
Session-7 (11:10-12:10)	Session Chair: Prof. B. M. Bhanage, ICT Matunga
	Role of structures in material stability at high temperature (20 min) <i>Dr. R. Mishra, BARC (SMC Silver medal)</i>

	Invisibility: Insights from engineered soft-nano hybrid Composites (20 min) <i>Prof. C. V. Yelamaggad, CeNS Bangalore (SMC Silver Medal)</i>
	Topochemistry for solving challenges in polymer synthesis (20 min) <i>Prof. K. M. Suresan, IISER Trivandram (SMC Silver Medal)</i>
Session 8 (12:10-13:10)	Session Chair: Dr. C. N. Patra, BARC
	Insights into radiation response of nuclear ceramics: Factors and their manifestations (30 min) <i>Dr. Vinita G Gupta, BARC</i>
	Development and applications of nuclear analytical techniques for chemical quality control of materials relevant for nuclear technology and society (20 min) <i>Dr. Raghunath Acharya, BARC (SMC Silver Medal)</i>
	Technical Talk by <i>Sindhu Ramesh, Sinsil International</i> (10 min)
Lunch (13:10 to 14:00 h)	
Session-9 (14:00- 15:10)	Session Chair: Dr. C. Majumder, BARC
	Design and development of sustainable cathode catalyst for fuel cells: A Micro-electrochemical approach via SECM (20 min) <i>Prof. Taramani C. Nagaiah, IIT Ropar (SMC Silver Medal)</i>
	From atoms to activity: Establishing structure–property relations in catalytic systems (20 min) <i>Dr. Mrinal Pai, BARC (SMC Silver Medal)</i>

	<p>Deformation behaviour of SS 316LN at elevated temperatures (15 min) <i>Dr. Diptimayee Samantaray, IGCAR, Kalpakkam (SMC Bronze medal)</i></p>
	<p>Technical Talk by <i>Dr. Hemant Kawalkar, Sigma-Aldrich Chemicals Pvt. Ltd</i> -10 min</p>
<p>Session-10 (15:10-16:10)</p>	<p>Session Chair: Dr. S. Jeyakumar, BARC</p>
	<p>Self-assembled barbituric acid ICT probes: Photophysical modulation, biomolecular sensing, and logic functions (15 min) <i>Prof. Nilanjan Dey, BITS Pilani, Hyderabad (SMC Bronze medal)</i></p>
	<p>Clean energy catalysis: Driving green ammonia production and next-gen storage technologies (15 min) <i>Prof. R. S. Dey, INST Mohali (SMC Bronze medal)</i></p>
	<p>Nanocarbon-enforced injectable hydrogel, MusCAMLR, for effective healing of damaged skeletal muscle (15 min) <i>Prof. Santosh Mishra, IIT Kanpur (SMC Bronze medal)</i></p>
	<p>Thermoplastic composite hydrogen storage system with integrated nanostructured barriers and leak detection (15 min) <i>Prof. Santosh Mysore CIMFR Dhanbad (SMC Bronze medal)</i></p>

Tea (16:10 to 16:30 h)

Session-11 (16:30-17:45)	<i>Session Chair: Dr. S. N. Sawant and Dr. J. Mohanty, BARC</i>
	Deployable nano-bioengineered Sensing Platform for Biomolecular Analysis in Miniaturized Settings (15 min) <i>Prof. Pranjal Chandra, IIT BHU (SMC Bronze Award)</i>
	Sustainable approaches in materials and hybrid technologies for health and environmental impact (15 min) <i>Prof. Shubra Singh, Anna University (SMC Bronze Award)</i>
	Optoelectronics and energy applications of 2D materials (15 min) <i>Prof. Ashish K. Mishra, IIT BHU(SMC Bronze Award)</i>
	Interplay of interactions and resulting phase behavior in multicomponent soft materials: Insights from Small-Angle Neutron Scattering (15 min) <i>Dr. Sugam Kuma, BARC (SMC Bronze Award)</i>
	Technical Talk by <i>Dr. T. Muraleedhara Reddy, Toshniwal Brother (SR) Pvt Ltd(10 min)</i>
17:45-18:00	Tea
18:00-19:00	SMC Annual General Body Meeting
19:00-19:45	Award Ceremony
Dinner (20:00-21:00)	

NWMC-2025 (DAY - 3)

November 22, 2025 (Saturday)

Session -12 (9:30-11:00)	<i>Session Chair: Dr. S. C. Parida, Head, PDD, BARC</i>
	Overview of nuclear fuels: Structure, thermophysical properties and quality control(30 min) <i>Dr. Amrit Prakash, NFG, BARC</i>

	<p>From nanopowders to technology realization: a research journey across energy and aerospace applications (30 min) <i>Dr. S. T. Aruna, NAL, Bangalore (SMC Distinguished Woman Scientist Award)</i></p>
	<p>Physics and chemistry under high-pressure torsion (30 min) <i>Dr. K K Pandey, BARC</i></p>
Tea (11:00 to 11:15 h)	
Session-13 (11:15-13:00)	<p><i>Session Chair: Dr. P. A. Hassan, Associate Director, BSG, BARC</i></p>
	<p>Computational advancement towards efficient energy materials: connecting a few dots (15 min) <i>Prof. Sudip Chakraborty, HRI (SMC Bronze medal)</i></p>
	<p>Liquid crystals: organized matrices for fundamental studies and practical applications in bio-sensing (30 min) <i>Prof. Kamendra Sharma, IIT Bombay</i></p>
	<p>Macrocyclic complexes of Pd thiolates and catalytic activity in C-C coupling reactions (30 min) <i>Dr. Sandip Dey, BARC</i></p>
	<p>Structure activity relationship in glycopolymers: Unlocking Their Potential as Biomaterials (30 min) <i>Dr. Juby Kuttan, BARC</i></p>
Lunch (13:00 to 14:00 h)	

<p>Session-14 (14:00-15:15)</p>	<p><i>Session Chair: Dr. Salil Varma and Dr. T Das, BARC</i></p>
	<p>Exploring structure-activity correlations in heterogeneous catalysis: insights from Fe_2O_3-based materials (15 min) <i>Atindra M Banerjee, BARC (SMC Bronze medal)</i></p>
	<p>Developing structure–property relations and machine learning models for materials discovery (15 min) <i>K. Srinivasu, BARC (SMC Bronze medal)</i></p>
	<p>Metal-organic frameworks as effective Xe and I_2 adsorbents: Structure-property correlation (30 min) <i>Siddhartha Kolay, BARC,</i></p>
	<p>Technical Talk by Jay Rambia, Educational and Research Aids Co. and Borosil Ltd (15 min)</p>
<p>Tea (15:15-15:30)</p>	
<p>(15:30-16:30)</p>	<p>Valedictory function</p>



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