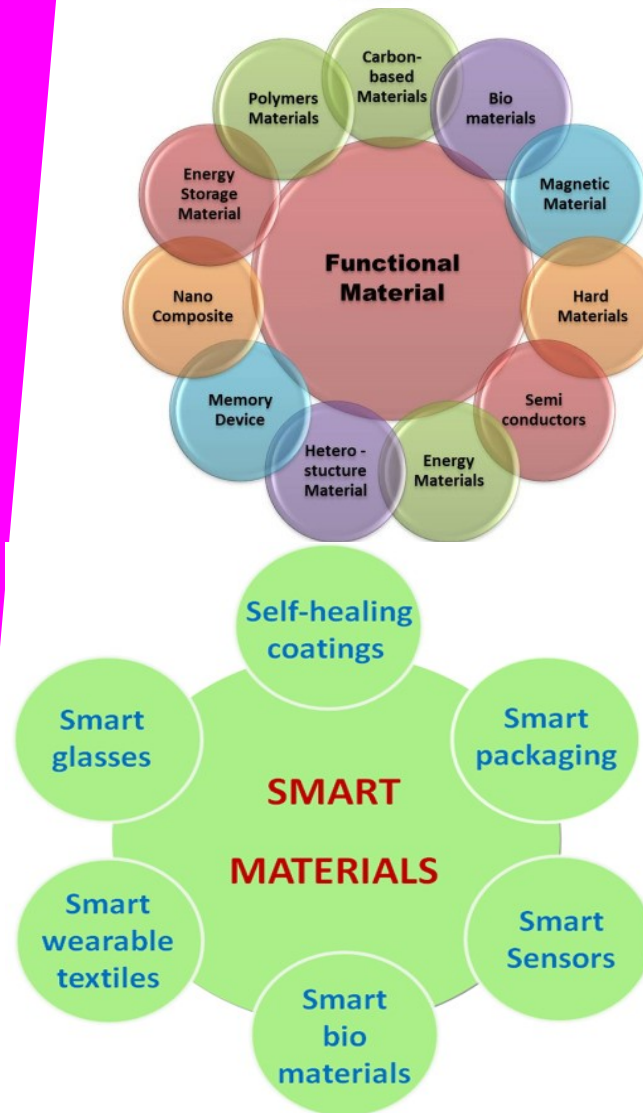


RECENT ADVANCES IN FUNCTIONAL & SMART MATERIALS (RAFSM-2025)

The objective of the programme is to upgrade the knowledge and skill of teachers employed in various disciplines of science and engineering with a special focus on material science, as it is the core of all engineering and science subjects. The FDP will cover common areas of interest to cater the need of faculty members across various disciplines focusing on properties of cutting edge functional and smart materials and their novel applications. The amalgam of academia, scientists and researchers from central universities, NIITs & IITs and other research organizations/ industries will give an opportunity to interact with them.



Google Form Link for Registration:

https://docs.google.com/forms/d/e/1FAIpQLSco78MiRkghvW5A-QitcTJaEXsy3OHAz3esNxoff_dy1INy0Q/viewform?usp=header

One Week Faculty
Development Programme
03 Feb. —07 Feb. 2025

RECENT ADVANCES IN FUNCTIONAL & SMART MATERIALS

(RAFSM-2025)

Organized by:

Department of Physics
& Material Science

MMM University of Technology,
Gorakhpur, UP,
India-273010

Convener:

Dr. Satya Pal Singh Mob. 9450422506

Head and Chairman

Prof. D K Dwivedi Mob. 9235500510

Email: rafsm.mmmut.2025@gmail.com

Final LECTURE SCHEDULE DAY-1 to DAY-5
(RAFSM-2025, 03 Feb. – 07 Feb. 2025)
Department of Physics & Material Science
Madan Mohan Malaviya University of Technology, Gorakhpur

S No	Date/Day	Lecture No.	Time	Resource Persons/Guests
1.	03 Feb. Day-1 Monday	Registration	9.00 am-10.00 am	Aryabhata Hall, ITRC, Madan Mohan Malaviya University of Technology, Gorakhpur
		Inauguration Ceremony	10.00 am- 10.30 am	Prof J P Saini, Hon'ble Vice Chancellor Madan Mohan Malaviya University of Technology Gorakhpur Patron & Chief Guest
		High Tea	10.30 am- 11.00 am	
		Keynote Address Lecture-1	11.00 am- 12.30 pm	Expert-1 Prof. Prabhakar Singh Department of Physics, IIT (BHU), Varansi, UP <i>Title: Innovations and Applications in Functional and Smart Materials</i>
		Lunch Break	12.30 pm- 2.00 pm	
		Lecture-2	02.00 pm- 3.00 pm	Expert-2 Prof. Prabhakar Singh Department of Physics, IIT (BHU), Varansi, UP <i>Title: Functional Materials: Driving Innovation in Energy Storage and Conversion Technologies</i>
		Tea Break	03.0 pm- 03.30 pm	
		Interactive Session-1	03.30 pm- 04.30 pm	Prof. Prabhakar Singh, IIT(BHU)
2.	04 Feb. Day-2 Tuesday	Keynote Address Lecture-3	10.00 am- 11.00 am	Expert-2 Prof. R. K. Singh Department of Physics BHU, Varansi <i>Title: Innovation in Energy Storage Materials and Devices for Automotive Applications</i>

		Tea Break	11.00 am- 11.30 am	
		Lecture-4	11.30 pm - 12.30 pm	<p>Expert-2 Prof. R. K. Singh Department of Physics BHU, Varansi</p> <p><i>Title: Sodium-Ion Batteries: A sustainable Alternative to Lithium-Ion Batteries for Efficient Energy Storage</i></p>
		Lunch Break	12.30 pm- 02.00 pm	
		Lecture-5	02.00 pm- 03.00 pm	<p>Expert-3 Dr. Anurag Prakash Sunda Department of Chemistry, J. C. Bose University of Science & Technology Faridabad, Hariyana</p> <p><i>Title: Introduction to Molecular Modelling Tools: Simulations Approach and Applications</i></p>
		Tea Break	03.0 pm- 03.30 pm	
		Lecture-6	03.30 pm – 4.30 pm	<p>Expert-3 Dr. Anurag Prakash Sunda Department of Chemistry, J. C. Bose University of Science & Technology Faridabad, Hariyana</p> <p><i>Title: Molecular Insights on Polymer-Electrolyte Membranes: Structure and Dynamics of Ion-Water Molecules</i></p>
3.	05 Feb.	Lecture-7	10.00 am- 11.00 am	<p>Expert-4 Prof. B C Yadav Department of Physics, BBAU Lucknow, Uttar Pradesh</p> <p><i>Title: Self-healing Nano-Materials</i></p>
	Day-3	Keynote Address		
	Wednesday	Tea Break	11.00 am- 11.30 am	
		Lecture-8	11.30 am - 12.30 pm	<p>Expert-4 Prof. B C Yadav Department of Physics, BBAU Lucknow, Uttar Pradesh</p> <p><i>Title: Self-powered sensors using functional materials</i></p>
		Lunch Break	12.30 pm- 02.00 pm	
		Lecture-9	02.00 pm- 03.00 pm	<p>Expert-5 Prof. Ravindradhar Department of Material Science University of Allahabad, Prayagraj</p>

				<i>Title: Anti-ferroelectric Liquid Crystals: Smart Materials for Future Displays</i>	
		Interactive Session-2	3.0 pm-4:30 pm	Laboratory Visit (Prof. B C Yadav)	
4.	06 Feb. Day-4 Thursday	Lecture-10	10.00 am- 11.00 am	Expert-5 Prof. Ravindradhar Department of Material Science University of Allahabad, Prayagraj <i>Title: Liquid-Crystal Composites for Efficient Solar Cells</i>	
		Tea Break		11.00 am- 11.30 am	
		Interactive Session-3	11.30 am - 12.30 pm		Prof. Ravindradhar
		Lunch Break		12.30 pm- 02.00 pm	
		Lecture-11	02.00 pm – 3.00 pm	Expert-6 Dr. Fouran Singh Scientists-G Inter-University Accelerator Center, New Delhi <i>Title: Heterojunction Diodes and Their Manipulations by Ion Beams for Multi-functional Applications</i>	
		Interactive Session-4 & Quiz	03.00 pm- 04.30 pm	Expert-6 Dr. Fouran Singh	
5.	07 Feb. Day-5 Friday	Lecture-12	10.00 am- 11.00 am	Expert-6 Dr. Fouran Singh Scientists-G Inter-University Accelerator Center, New Delhi <i>Title: Research & Innovation for Sustainable Development</i>	
		Keynote Address			
		Valedictory	11.00 am-12.00 pm	Prof J P Saini, Hon'ble Vice Chancellor Madan Mohan Malaviya University of Technology Gorakhpur Patron & Chief Guest	
		High Tea	12.00 pm- 12.30 pm	ITRC Lounge	

1. Prof.Prabhakar Singh



Prof. Prabhakar Singh is a Professor and Former Head Department of Physics, Indian Institute of Technology (Banaras Hindu University) Varanasi. He obtained his undergraduate degree in Physics and Mathematics from Udai Pratap Autonomous College, Varanasi; Master of Science in Physics from Banaras Hindu University, Varanasi; M.Tech from School of Materials Science and Technology, Institute of Technology, Banaras Hindu University, Varanasi and received his Ph.D. in Natural Science from Institute of Physical Chemistry, University of Muenster, Muenster, Germany. He was appointed as

Assistant Professor: In Physics, Udai Pratap Autonomous College, Varanasi (Oct. 1999 - June 2006);

Assistant Professor: In Physics, School of Sciences, Indira Gandhi National Open University, New Delhi (June 2006 - Nov. 2007)

Reader: Applied Physics, I.T. BHU, Varanasi (Nov. 2007- Nov, 2010).

Associate Professor: Department of Physics, IIT (BHU), Varanasi (Nov 2010 - Sep 2015).

Professor: Department of Physics, IIT (BHU), Varanasi (Sept 2015 June 2022).

Professor (HAG-Scale): Department of Physics, IIT (BHU), Varanasi (since July 2022 to till date)

His broad area of interest is Condensed Matter Physics, Experimental Materials Science and technology including Ion Conducting Glasses, Solid state electrolytes, Materials for Fuel Cells, Materials for Solar Cells, Ceramic Materials for Sensor applications, Electrical, dielectric and piezoelectric properties of the electro-ceramics, Functional materials for energy applications.

He has published around 132 research papers in SCI journal and around 22 papers has been published as Conference papers. He has been completed 6 research projects and 4 research projects are ongoing.

2. Prof. Rajendra Kumar Singh



Dr. Rajendra Kumar Singh is a Senior Professor, Dept of Physics, BHU. He obtained his undergraduate degree in 1986 from DDU Gorakhpur University; Post-graduation degree in 1988 from DDU Gorakhpur University; D.Phil Degree in 1993 from University of Allahabad.

He has published around 190 research papers in SCI journal, around 11 papers have been published as Conference papers and around. He has been completed 16 research projects and 3 research projects are ongoing. He has delivered 75 Important National/ International conferences/meetings/events attended and talks. He has supervised 18 students and 5 are ongoing. He is also acted as expert member in selection committees of UPPSC, Allahabad, PSC, Jammu, MPPSC and UK PSC, MMTU, Gorakhpur, IET, Lucknow, JN Vyas University, Jodhpur, Thapar University, Patiala, P.U. Jaunpur etc. Evaluated Ph.D. Thesis from various various IITs, Indian Universities, some foreign Universities like Anna Univ, Tamilnadu, Delhi University, Kaketiya Univ, Jammu Univ., APS Univ, Rewa, Revansha Univ, Cuttack, IACS Jadavpur Kolkata, Nagpur University, Institutes like, I.I.T. Mumbai, Monash University Australia, UGC expert member for Dr. J N Vyas Univ. Jodhpur, Tripura University, UGC Networking Centre, School of Physics, University of Hyderabad.

3. Prof. Ravindra Dhar



Ravindra Dhar received the D. Phil. degree in science from the University of Allahabad, Allahabad, India, in 1996. During 1999–2009, he has been Associate Professor of Physics at Ewing Christian College, University of Allahabad, Allahabad, India. Recently he has joined as Associate Professor of Material Sciences at Centre of Material Sciences, University of Allahabad, Allahabad, India. He has been sanctioned National Research Award from the University Grants Commission, New Delhi, India. His primary research interest is focused on induced phases in liquid crystal mixtures, twist grain boundary phases, Ferro-electric, and Anti-Ferro-electric phases, radiation-induced effects in liquid crystals, and Nano systems. He has published more than 50 research papers in these areas. Dr. Dhar is currently a member of the Editorial Board of Phase Transitions, a multinational journal from Taylor and Francis. He is also on the advisory board of Bentham Open Journal of Crystallography. He is also in charge of the Secretary of the Indian Liquid Crystal Society.

Awards-

2018 ASSOCIATE FELLOW

International Academy of Physical Sciences

2017 ILCS GOLD MEDAL

Indian Liquid Crystal Society (A Chapter of International Liquid Crystal Society)

2017 FELLOW

The Institution of Electronics and Telecommunication Engineers (IETE)

2006 UGC RESEARCH AWARD

University Grants Commissions, New Delhi

YOUNG SCIENTIST PROJECT AWARD

2004 DST, New Delhi

1989 NATIONAL ELIGIBILITY TEST (NET)

UGC-CSIR, New Delhi

He has published around 145 research papers in SCI journal and around 28 papers has been published as Conference papers and also he has been completed 7 research projects.

4. Prof. B.C Yadav



PROF. BALCHANDRA YADAV Ph.D., F.N.A.Sc.

Dean, School of Physical & Decision Sciences

Dean, School of Engineering & Technology

Dean, School of Yoga, Naturopathy and Cognitive Studies

Director: University Sophisticated Instrumentation Center (USIC), Babasaheb Bhimrao Ambedkar (A Central) University, Lucknow, UP, India

He obtained his undergraduate degree in 1991 from Dr. R.M.L. Awadh University, Faizabad; Post-graduation degree in 1993 from Dr. R.M.L. Awadh University, Faizabad ; Ph.D. degree in 2001 from University of Lucknow, Lucknow and Post-Doctoral Training in 2010-11 from KTRICT, Daejeon, South Korea.

His broad area of interest is Nanoscience and Technology, Physics and Technology of Sensors, Nano-optoelectronics, Renewable Energy, Acoustics.

He has published around 286 research papers in SCI journal, around 7 papers have been published as Conference papers and around 24 review articles. He has completed 9 research projects.

He is also Member of Editorial Board such as

1. American Journal of Optics and Photonics, Science Publishing Group, USA.
2. SciFed Journal of Petroleum, SciFed Group, USA
3. Lucknow Journal of Science, Print ISSN: 0974-8121, Online ISSN: 0974-813X, Publisher: Lucknow University Teacher's Academic Publication Society.
4. International Journal of Scientific and Innovative Research 2013; 1(2):93-108, P-ISSN 2347-2189, E-ISSN 2347-4971
5. International Journal of Advanced and Applied Sciences, E-ISSN:2313-3724, I S SN : 2 3 1 3 – 6 2 2 X

5. Dr. Anurag Prakash Sunda



He obtained his undergraduate degree in 2006 from Shri Kalyan Govt. PG College (Sikar), University of Rajasthan, Jaipur; Post-graduation degree in 2008 from Department of Chemistry, University of Rajasthan, Jaipur; M.Phil Degree in 2009 from Center for Non-conventional Energy Resources, University of Rajasthan, Jaipur; Ph.D. degree in 2014 from Indian Institute of Science Education and Research (IISER), Pune.

He is an Assistant Professor, Chemistry J. C. Bose University of Science and Technology, YMCA Faridabad.

AWARDS/FELLOWSHIP

2016 SERB - International Travel Support, For EMN Meeting on Fuel Cells, Korea-Rok.

2014 INSPIRE Faculty Award, Materials Sciences, by DST, New-Delhi.

2011 Rajat Jayanti Vigyan Sancharak Fellowship, by NCSTC, DST, New-Delhi.

2010 CSIR-UGC NET JRF, (Chemical Sciences) Rank 314 (2009).

2009 GATE 2009, Chemical Sciences, 90.46 percentile score.

He has published around 20 research papers in SCI journal, around 11 papers has been published as Conference papers and around 24 review articles. He has been completed 2 research projects and 4 research projects are ongoing.

6. Dr. Fouran Singh



He is incharge of Structure and Spectroscopy lab. He is involved in the development and utility of the facilities of spectroscopic and structural characterizations like PL, IL, UV-Visible, micro-Raman, FTIR and X-ray diffraction (XRD). His research interests are in the ion matter interactions, synthesis and tailoring of nanocomposites, organic-inorganic hybrids, wide bandgap semiconducting materials and defects in insulators for optoelectronics/Photovoltaic applications.

Dr. Fouran Singh has been working at IUAC, New Delhi for more than 26 years and visited several countries such as Germany, France, Italy, and Mexico within the framework of research. He has supervised several doctoral and post-doctoral fellows in the field of wide band gap materials for optoelectronics/ photovoltaics, phase transition of materials, plasmonics, nanocomposites, nano-hybrids, and defects in materials. He has been extensively involved in the Accelerator-based collaborative research. He has published around 338 research papers in SCI journal.