2023 AMBT
ADVANCED MATERIALS FOR BETTER TOMORROW

International Conference on

Advanced Materials for Better Tomorrow-II

Venue: Seminar Complex, Institute of Science, BHU, Varanasi

Conference Program

Organized by

Department of Physics, BHU & SIRMB

10th -13th October, 2023

Banaras Hindu University, Varanasi, UP, India

Day 1: 10th October 2023 (Tuesday)	
Breakfast 07:30 - 09:00	
Arrival and Registration 08:00 – 17:00	
Conference Inauguration 09:00 – 09:45	
Hi-Tea 09:45 – 10:15	
Morning Session ***Chair: Prof. Shobha Shukla, IIT Bombay***	
10:15- 11:00	**Navigating Complexity by Scientific Common Sense** *Harnessing Self-organization in Confined Soft Materials for Micro/Nanofabrication* ***Prof. Ashutosh Sharma, IIT Kanpur***
11:00-11:45	2D or not 2D (Some considerations of 2- and 3-dimensional Hybrid Halide Materials) ***Prof. Dipankar Das Sarma, Indian Institute of Science Bangalore***
11:45-12:15	Direct investigation of the topological surface states by high-resolution angle-resolved photoemission spectroscopy ***Prof. K. Shimada, Hiroshima University***
12:15-12:45	Cooperative Kinetics of Living Liquid Crystals ***Prof. Sanjay Puri, Jawaharlal Nehru University, New Delhi***
12:45-13:15	Terahertz (THz) Spectroscopy with various Applications to the study of Materials using Far-Field and Near-Field Techniques. ***Prof. S. Prabhu, TIFR, Mumbai***
13:00-13:25	Functional Materials via Ionic Liquids ***Prof. Pushpal Ghosh, Dr. Harisingh Gour University***
LUNCH , Group Photo, POSTER Session 13:30 to 16:00	
Ganga Aarti and Boat Ride 16:30 to 20:00	
WELCOME DINNER 20:00 ONWARD	

Day 2: 11th October 2023 (Wednesday)

Breakfast 7:30-9:00 am

POSTER SESSION 8:00-10:00 am

FOCUS SESSION: Women scientists in India

	Morning Session I ***Chair: Prof. Aditi Halder, IIT Mandi***	***Morning Session II*** ***Chair: Dr. Moutusi Manna, CSIR Bhavnagar***
10:00-10:25	Soft/hard intermetallic bilayers for controlled switching in spintronics: Synchrotron studies and simulations ***Prof. Annapoorni Subramanian, University of Delhi***	Exploring bone osteogenic and osteoclastic biomarkers using SiRNA to promote Osteoblast differentiation by effective silencing of SOST and Inhibition of Sclerostin: in vitro & in vivo ***Prof. Anita Kamra, University of Delhi***
10:25-10:50	Quantum dots and Stone Wale Topological Defects in Graphene ***Prof. Shikha Verma, IOP Bhubaneshwar***	Semiconducting nanowires for neural tissue engineering ***Prof. Vinni Gautam, IISc Bangalore***
10:50- 11:15	Raman spectroscopic studies of lattice dynamics and electronic structure evolution in twisted bilayer 2D materials ***Prof. Vidya Kochat, IIT Kharagpur***	Transforming innovative clinical diagnostics: Turning challenges into enablers ***Prof. Priyanka Sabherwal, University of Mumbai***
11:15-11:40	Two-photon Polymerization-Assisted Additive Manufacturing of Functional Micro/nanostructures ***Prof. Shobha Shukla, IIT Bombay***	Post-translational modification in protein aggregation and toxicity: A shifting perspective ***Dr. Smriti Priya, CSIR-IITR, Lucknow***
Tea Break 11:40-11:55		
	Chair: Prof. Vidya Kochat, IIT Kharagpur	***Chair: Prof. Vinni Gautam, IISc Bangalore***
11:55-12:20	Optically active quantum dots in 2D materials and their heterostructures ***Prof. Sudipta Dubey, IIT Kanpur***	Biological Membranes under Stress ***Dr. Moutusi Manna, CSIR Bhavnagar***
12:20-12:45	Hybrid Heterojunctions: Future-generation Energy Materials ***Dr. Debjani Karmakar, BARC, Mumbai***	Porous Gold nanorod Integrated Biocompatible Hybrid hydrogel for Photo Chemo Therapeutic model ***Prof. Sunita Srivastava, IIT Bombay***
12:45-13:10	Surface Engineering of Layered Materials for Energy Storage Application ***Prof. Aditi Halder, IIT Mandi***	Recognition of Bovine Hemoglobin using Nonlinear Vibrational Spectroscopy on Molecularly Imprinted Polymer Surfaces ***Prof. Shilpi Chaudhary, PEC Chandigarh***
Lunch 13:30 to 14:30 ***(poster session will continue during lunch break)***		
	Afternoon Session I ***Chair: Dr. Debjani Karmakar, BARC, Mumbai***	***Afternoon Session II*** ***Chair: Prof. Sunita Srivastava, IIT Bombay***
14:30-14:55	Terahertz probes for topological and magnetic quasiparticles ***Prof. Dhanvir S Rana, IISER Bhopal***	Advanced Nanomaterials using Ultrafast Ablation Techniques and Sensing Applications ***Prof. Venu Gopal Rao, University of Hyderabad***

14:55- 15:20	Time domain THz Spectroscopy and Imaging Techniques: A Tool for Materials Characterization ***Prof. A.K. Chaudhary, University of Hyderabad***	Tuning the optical properties of the Near Infrared Emitting Materials: Synthesis Structural and Photophysical Studies of New Lanthanide Complexes. ***Prof. Satyen Saha, Banaras Hindu University***
15:20-15:45	Phase microscope for biologists ***Prof. Rakesh Kumar Singh, IIT (BHU), Varanasi***	Multicomponent heterojunction photocatalyst for UV-Visible-NIR responsive photocatalytic degradation of Rhodamine B ***Prof. Sunil Kumar Singh, IIT (BHU), Varanasi***
15:45- 16:10	Cryo-EM structure of the honey bee virus at 3.5 Å. ***Prof. Sandip Kaledhonkar, IIT Bombay***	Low-Cost and Flexible Polymer Nanostructures for Room Temperature Ammonia Detection ***Prof. Kamlendra Awasthi, MNIT, Jaipur***
16:10-16:35	Controllable memristive behavior of ion-implanted TiOx films for potential application in neuromorphic computing ***Prof. T. Som, IOP Bhubaneshwar***	Sustainable Innovations: Biopolymers from Agricultural Waste for Food Packaging and Quality Assessment ***Prof. Sandeep K. Sharma, CSIR IITR, Lucknow***
TEA BREAK: 16:35 to 16:50		
Evening session I ***Chair: Prof. Sudipta Dubey, IIT Kanpur***		***Evening Session II*** ***Chair: Prof. Shilpi Chaudhary, PEC Chandigarh***
16:50-17:15	Magnetic anisotropy and Magnetization reversal in Heusler alloy thin films ***Prof. S. Srinath, University of Hyderabad***	Exploring Gene Regulation through Chromatin Organization: Computational Framework Connecting HiC to Gene Transcription ***Prof. Hemant Kumar, IIT Bhubaneshwar***
17:15-17:40	Novel approaches for enhanced Rashba spin-orbit effects ***Dr. Ganesh Ji Omar, NUS, Singapore***	3D Printed Hybrid Hydrogel of Amyloid and Aloe Vera for Diabetic Wound Healing ***Prof. Avanish S. Parmar, IIT (BHU), Varanasi***
17:40-18:05	Spectroscopic Studies of Chirality and Resonances in Multilayer Films ***Dr. T. S. Suraj, NUS, Singapore***	Combined effect of electrostatic and dynamic electrical stimulation towards cellular and antibacterial response on electroactive substrates ***Prof. Ashutosh Kumar Dubey, IIT (BHU) Varanasi***
GALA DINNER/PROGRAM 19:30 onward		

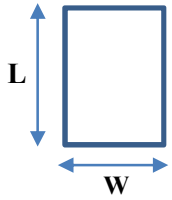
Day 3: 12th Oct, 2022 (Thursday)		
Breakfast 7:30-9 am		
POSTER SESSION 8:00-9:30 am		
Morning Session **Chair: *Prof. Pushpendra P. Singh, IIT Ropar***		
09:30-10:00	Optoelectronic modulation via inter-coupled ferroelectricity in 2D In_2Se_3 based heterostructures ***Prof. Elad Koren, Technion- Israel Institute of Technology, Israel***	
Morning Session I **Chair: *Prof. Pushpendra P. Singh, IIT Ropar***		**Morning Session II** **Chair: *Prof. Sunil Kumar Singh, IIT (BHU) Varanasi***
10:00-10:25	Fabrication and radiation response of emerging non-volatile memory devices ***Prof. S.V.S Nageshwara Rao, University of Hyderabad***	Pressure induced metallization of Solid Iodanil (C6I4O2) ***Prof. G.S. Vaitheeswaran, University of Hyderabad***
10:25-10:50	Resistive switching in nanostructured VO_2 thin films ***Prof. Shrawan Kumar Mishra, IIT (BHU), Varanasi***	Phase separating fluids with polymer additives at domain interfaces ***Prof. Awaneesh Singh, IIT (BHU) Varanasi***
10:50-11:15	Semiconducting Quantum Dots for Device Applications ***Prof. Kedar Singh, SPS, JNU***	Generalization of the Einstein coefficients and rate equations under the quantum Rabi oscillation ***Prof. Shyamal Biswas, University of Hyderabad***
Tea break 11:15 to 11:30		
Chair: *Prof. Ajay Soni, IIT Mandi*		**Chair: *Prof. Shyamal Biswas, University of Hyderabad***
11:30-11:55	Photon-Magnon Coupled Hybrid Quantum System for Next-Generation Information Processing Technology ***Prof. Biswanath Bhoi, IIT (BHU) Varanasi***	Quantum Device Engineering based on Photon- Magnon Coupling ***Prof. Rajeev Singh, IIT (BHU) Varanasi***
11:55-12:20	Integration of alternate materials for computing and storage device application ***Prof. Robin Khosla, IIT Mandi***	Macromolecules interaction mediated via ionic solution ***Prof. Sunita Kumari, IIT Jodhpur***
12:20 -12:35	Tribological Performance of MoS_2-based Solid Film Lubricant for Space Application ***Dr. Janardan Singh, ISRO***	Quantum computational studies on optimization, donor-acceptor analysis and solvent effect on reactive sites, global descriptors, NLO parameters of Moxonidine ***Prof. S. Muthu, Puratchi Thalaivar Dr.M.G.R Government Arts And Science***
12:35-12:50	Design and Development of Porous Carbon Material for Hydrogen storage and Air Cathode for Al-air Battery ***Dr. Anant Pandey, IIT Jodhpur***	Synthesis, molecular structure, vibrational spectroscopy and molecular docking studies on (z)-4-((2,4-dihydroxyphenyl) diazenyl) benzene sulfonic acid with quantum computational studies. ***Prof. S. Durgadevi , Thalapathy K Vinayagam Women's Arts and Science College***
12:50-13:05	Copper selenide nanoflowers for room temperature NH_3 gas sensing ***Dr. Paramita Maiti, IoP Bhubaneshwar***	-

Lunch 13:00-14:00		
	Afternoon Session I ***Chair: Prof. Shikha Verma, IoP Bhubaneshwar***	***Afternoon Session II*** ***Chair: Prof. Padmaja P. Mishra, SINP***
14:00-14:25	Two-Dimensional Semiconducting Non-van der Waals Bismuth Oxyselenide and Noble Metal Dichalcogenide $PdSe_2$: Intriguing Photophysics and Emerging Applications ***Prof. P.K. Giri, IIT Guwahati***	Inter-particle adhesion induced strong mechanical memory in a dense granular suspension ***Prof. Sayantan Majumdar, RRI Bangalore***
14:25-14:50	Light-Matter Interactions and Many body Phenomena in Chalcogenides ***Prof. Ajay Soni, IIT Mandi***	Modification of materials surface with immunomodulatory small molecule reduces macrophage capture and fibrosis ***Prof. Sudip Mukherjee, IIT (BHU), Varanasi***
14:50- 15:15	Tuning Optoelectronic Properties of 2D and Mixed Dimensional van der Waals Heterostructures through Dielectric Engineering ***Prof. Atikur Rahman, IISER Pune***	Roles of engineered substrates and lamin A mutations in modulating mechanotransduction in cell ***Prof. Kaushik Sengupta, SINP Kolkata***
15:15-15:40	Moir'e Fractals in Twisted Graphene Layers ***Prof. Sankalpa Ghosh, IIT Delhi***	Progression of non-alcoholic steatohepatitis recapitulated on a human liver-on-a-chip ***Prof. Gowri Balachander, IIT (BHU) Varanasi***
Hi Tea *15:40-16:00*		
	Chair: Prof. Biswanath Bhoi, IIT (BHU) Varanasi	***Chair: Prof. Kaushik Sengupta, SINP Kolkata***
16:00-16:25	Enhancement of Device Performance by Incorporation of Amorphous Carbon Thin Film ***Prof. Monalisa Pal, Banaras Hindu University***	Effective Controlling of DNA Breathing by Macromolecular Crowding ***Prof. Padmaja P. Mishra, SINP***
16:25-16:50	Amorphous Carbon: A New Member of Magnetic Club with Promising Future Prospective ***Dr. Sujay Chakravarty, UGC DAE CSR Kalpakkam***	Nanoporous Phosphorene as a Desalination Membrane ***Dr. Gaganpreet, Dept. of Physics, PGGCG-11, Chandigarh***
Student Oral presentations		
	Evening session I: ***Chair: Prof. Shrawan Kumar Mishra, IIT (BHU), Varanasi***	***Evening session II*** ***Chair: Prof. Sudip Mukherjee, IIT (BHU), Varanasi***
16:50-17:00	Optical absorption and emission mediated by exciton-phonon interaction in monolayer AlN at finite temperatures ***Pushpendra Yadav, IIT Kanpur***	Bioinspired Peptide-based Advanced Composite Scaffolds for Applications in Healthcare ***Sourav Sen, INST Mohali***
17:00-17:10	Hexagonal Boron Nitride coatings for electromagnetic radiation shielding applications. ***Nurul Hassan, Banaras Hindu University***	A Robotic Disinfection System with Movable Ultraviolet Light Radiating Arms ***Monika, IIT Bombay***
17:10-17:20	Oxadiazole-integrated heterocoronene discotics as ambipolar organic semiconductors ***Ritobrata De, IISER Mohali***	3-D printed Amyloid-Aloe vera hydrogel as a personalized chronic wound dressing ***Kaustubh Naik, IIT (BHU) Varanasi***

17:20-17:30	Glucose oxidation assisted ammonia production via electrochemical dinitrogen reduction over $CoWO_4$ ***Akansha Chaturvedi, IIT Ropar***	Synthesis of highly biocompatible surface-modified MoS_2 Nanoflowers: unraveling the detailed antibacterial mechanisms ***Rupal Kaushik, IIT Kharagpur***
17:30-17:40	Curious Catalytic Characteristics of Al-Cu-Fe-Ni-Ti High Entropy Alloy for De/Rehydrogenation of MgH_2 ***Yogesh Kumar Yadav, Banaras Hindu University***	Evidence of crossover from "Bottom-up" to "Top-down" in the synthesis of MoS_2 Quantum dots ***Geetika Sahu, BITS Pilani***
17:40-17:50	Investigating the potential of hexagonal boron nitride for sodium-based batteries ***Shubham Garg, IIT (BHU) Varanasi***	-

Day 4: 13th Oct, 2022 (Friday)	
Breakfast 7:30-9:00 am	
Morning Session ***Chair: Prof. Rajeev Singh, IIT (BHU), Varanasi***	
9:00-9:30	Geometric frustration drives novel quantum states of matter ***Prof. Pinaki Sengupta, Nanyang Technological University, Singapore***
9:30- 9:55	Unconventional Superconductivity in doped topological semimetals ***Prof. Ravi P. Singh, IISER Bhopal***
9:55-10:20	Hydrogen production: H_2O vs H_2S Electrolysis-better for tomorrow? ***Prof. C.N. Tharamani, IIT Ropar***
10:20-10:45	Anomalous Hall, Berry Phase and Atomic Ordering in Co-based Heusler Compounds ***Prof. Sanjay Singh, IIT (BHU) Varanasi***
10:45-11:10	Probing cytoplasmic streaming and its temperature dependence in plant cells using optical tweezers ***Prof. Ambarish Kunwar, IIT Bombay***
11:10-11:35	Preferential Surface-terminations Induce High Piezoresponse in Perovskite-PVDF Nanocomposites ***Prof. Rupak Banerjee, IIT Gandhinagar***
11:35-12:00	Unconventional magnetism as a consequence of the orbital effect in $Ba_4Ru_3O_{10}$ ***Dr. J. Sannigrahi, IIT Goa***
VALEDICTORY/AWARD FUNCTION Followed by Lunch	

POSTER SESSIONS
Poster size: 4 ft. x 3 ft. (L x W)



10th October 2023		11th October 2023		12th October 2023	
Poster No.	**Name and Institute**	**Poster No.**	**Name and Institute**	**Poster No.**	**Name and Institute**
P001	Amit Kumar, Hiroshima University	P051	Ahana Hazra, Jadavpur University	P081	Sachin Verma, IIT (BHU) Varanasi
P002	Yogendra Kumar, Hiroshima University	P052	Angad Sharma, JNU	P082	Jayashri Mahpatro, NIT Raipur
P003	Sumit Modanwal, Banaras Hindu University	P053	Aranyak Mitra, IIT Bombay	P083	Avijeet Rai, Banaras Hindu University
P004	Ramsamoj Kewat, IISER Bhopal	P054	Divya Rao, CSIR- IGIB	P084	Kaleeswaran S, Madras Christian College
P005	Ranjan Kumar, Banaras Hindu University	P055	Dona Benny, Madras Christian college	P085	Kanchan Kumar Kole, CSIR-CGCRI
P006	Paulomi Singh, IIT Kharagpur	P056	Franklin Pulikkottil Mohny, CSIR-IGIB	P086	Manu Srivathsa, Manipal Institute Of Technology
P007	Nisha, University of Hyderabad	P057	Krishan kumar, IIT (BHU) Varanasi	P087	Chandan Bhai Patel, Banaras Hindu University
P008	Kumari Neha, IIT Bhubaneswar	P058	Manjit, IIT (BHU) Varanasi	P088	Nagashree M C, Manipal Institute of Technology
P009	Debasish Behera, IIT Bhubaneswar	P059	Pooja Kumari, IIT (BHU) Varanasi	P089	Priyavrat, Veer Kunwar Singh University
P010	Ankit Mishra, Banaras Hindu University	P060	Shambhavi, INST Mohali	P090	Tamali Mukherjee, BITS Pilani, Hyderabad
P011	Binita Boro, IIT Kharagpur	P061	Shubham Raj, NIT Patna	P091	Saurabh Mishra, Banaras Hindu University
P012	Arun Kumar, IIT Roorkee	P062	Simanti, CSIR-IGIB	P092	Laxmikant Banaj, NIT Raipur
P013	Dipak Maity, TIFR-Hyderabad	P063	Subhradip Nath, SINP	P093	Dr. Bornali Sarma, University of Delhi
P014	Arpita Rana, Banaras Hindu University	P064	Subrata Kumar Maiti, IIT Roorkee	P094	Sabhya, Manipal Institute of Technology
P015	Hari Singh, UGC-DAE CSR Kalpakkam	P065	Swayamshree Senapati, IIT Bhubaneshwar	P095	Biplab Mondal, Banaras Hindu University
P016	Khalid Ansari, IIT Roorkee	P066	Sweta Mohanty, INST Mohali	P096	Shinthiya Mystica B, Madras Christian College
P017	Sunil Kumar V, SRM Institute of Science and Technology	P067	Vishakha Choudhary. Banasthali Vidyapeeth, Rajasthan	P097	Niranjan N Prabhu, Manipal Institute of Technology
P018	Koushik Ghosh, IIT Guwahati	P068	Lipi Pradhan, IIT (BHU) Varanasi	P098	Vidyalakshmi V, Manipal University
P019	Sirsendu Ghosal, IIT Guwahti	P069	Manish Kumar, IIT (BHU) Varanasi	P099	Adithya Prakash, Manipal Institute of Technology
P020	Monalisha Nayak, Banaras Hindu University	P070	Pragya, IIT (BHU) Varanasi	P100	Dr. Manju Pandey, Ajeenkya D Y Patil University
P021	Sonal Sharma, IIT Roorkee	P071	Surya Pratap, Banaras Hindu University	P101	Vishnu Saraswat, Banaras Hindu University
P022	Suvendu Kumar Panda, IIT Bhilai	P072	Ilamathy P, IIT Bombay	P102	Ritu Gupta, NIT Raipur
P023	Tejasvini Singh, Banaras Hindu University	P073	Prasoon Madhukar, Banaras Hindu University	P103	Saurabh Dubey, IIT Guwahati

P024	Shipra Aswal, IIT Guwahati	**P074**	Malay Nayak, IIT (BHU) Varanasi	**P104**	Satyam Singh, University of Hyderabad
P025	Saurabh Kumar Srivastava, IIT (BHU) Varanasi	**P075**	Shikha, IIT (BHU) Varanasi	**P105**	Anagha M. Datta, Max Planck Institute
P026	Richa Tripathi, Banaras Hindu University	**P076**	Tapan Parsain Banaras Hindu University	**P106**	Srijita De, IIT Guwahati
P027	Abhishek Maurya, IIT (BHU) Varanasi	**P077**	Ravi Pratap, IIT (BHU) Varanasi	**P107**	Sonu Kumar Singh, IIT Bombay
P028	Divya Rawat, IIT Mandi	**P078**	Aditi Pandey, Banasthali Vidyapith Jaipur	**P108**	Radhe Shyam, IIT (BHU) Varanasi
P029	Sahil Verma, CSIR-NPL	**P079**	Sarbajit Layek, IISER Kolkata	**P109**	Sourav Basu, Banaras Hindu University
P030	Syam Prasad P, IIT Hyderabad	**P080**	Kumari Priya, IIT Roorkee	**P110**	Kartik Shah, IIT (BHU) Varanasi
P031	Labesh Baid, NIT RAIPUR				
P032	Sunil Kumar , Banaras Hindu University				
P033	Arunava Das, IIT (BHU) Varanasi				
P034	Ravindra Hazam, IIT (BHU) Varanasi				
P035	Sarita, IIT (BHU) Varanasi				
P036	Yogita Sahu, NIT Raipur				
P037	Mrittika Paul, IIT Kharagpur				
P038	N Usha Kiran, CSIR-IMMT				
P039	Raghubir K. Prajapati, Banaras Hindu University				
P040	Richa Tiwari, R.T.M. Nagpur University				
P041	Adrish Chakraborty, NIT Meghalaya				
P042	Dr. Shriya Sinha, Shahid Chandrashekhar Azad Govt. P. G. College, Jhabua				
P043	Sanjoy Sur Roy, IIT Guwahati				
P044	Sanju Nandi, IIT Guwahati				
P045	Moram S.S. Bharati, Univ. of Hyderabad				
P046	Ramnarayan, Banaras Hindu University				
P047	Jagadish K A, Manipal Institute of Technology				
P048	Himanshu Gupta, MNIT Jaipur				
P049	Pranjali, Banaras Hindu University				
P050	Jayalakshmi K, Manipal Institute of Technology				