



ULTRAFAST SCIENCES-2023 (UFS-2023)

DAE-BRNS 10th Theme Meeting

25th -27th November 2023

CSIR-National Physical Laboratory, New-Delhi

Day-01, Saturday, 25th November, 2023

| Time | Program | |
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| 8:30-9:30 | Registration | |
| 9:30-9:35 | Welcome of Dignitaries and Lamp Lighting | |
| 9:35-9:40 | Welcome and inaugural address by Chairman UFS-2023 Prof. Achanta Venu Gopal, Director, CSIR-NPL | |
| 9:40-9:45 | Address by Mentor UFS-2023 Prof. D. K. Palit, CBS Mumbai | |
| 9:45-9:50 | Address by Metrology Society of India (MSI) Dr. Sanjay Yadav, Vice-President MSI | |
| 9:50-9:55 | Address by Chief Guest Dr. Geetha Vani Rayasam, Head, CSIR-HRDG | |
| 9:55-10:40 | Address by Keynote Speaker Prof. M. Krishnamurthy, TIFR-Hyderabad | |
| 10:40-10:45 | Vote of thanks Dr. Mukesh Jewariya, CSIR-NPL | |
| 10:45-11:15 | High Tea, A.R. Verma Lawn | |
| Technical Session-01: Attosecond Physics and Metrology Chairperson: Prof. D K Palit, CBS Mumbai | | |
| 11:15-11:55 | PT-01 | Observing and Steering Electrons in Atoms and Molecules with Intense Laser Fields: From Atto- to Femtoseconds, and Beyond Dr. Thomas Pfeifer, Max-Planck-Institut für Kernphysik, Heidelberg |
| 11:55-12:25 | IT-01 | Attosecond Physics: Let there be light and electron Dr. Gopal Dixit, IIT Bombay |
| 12:25-12:55 | IT:02 | Quantum Control of Molecular Photo-Dissociation in the Two-Color Laser Field: Attosecond Delay Dr. Rajesh Kushwaha, PRL, Ahmadabad |
| 12:55-13:25 | IT-03 | Novel Attosecond Delay Lines for Isolating Non-adiabatic Light-Atom Interaction and its Metrology |

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| | | Dr. K.P Singh, IISER Mohali |
| 13:25-13:40 | CT-01 | Attosecond Generation and High-Order Harmonic Studies at RRCAT Indore Dr. Himanshu Singhal, RRCAT, Indore |
| 13:40-14:40 | Lunch Break, NPL Cafeteria | |
| 14:40-15:40 | Poster Session – I, Library Corridor | |
| Technical Session-02: Ultrafast Sources and Applications | | |
| Chairperson: Dr. Nita Dilawar, CSIR-NPL | | |
| 15:40-16:20 | PT-02 | Half-light Half-matter Quasiparticles (polaritons) in Low-Dimensional Solid-State Systems Prof. Vinod Menon, The City College of New York - CUNY |
| 16:20-16:50 | IT-04 | Exciton Dynamics of Water-Soluble Semiconductor Nanocrystals Prof. Anindya Dutta, IIT-Bombay |
| 16:50-17:05 | Tea Break: A. R. Verma Lawn | |
| 17:05-17:35 | IT-05 | Spectroscopy with Femtosecond Laser-Modulating the Excited State Dynamics and Their Applications Dr. Sukhendu Nath, BARC, Mumbai |
| 17:35-17:50 | CP-01 | Company Presentation: Laser Science Services (I) Pvt Ltd |
| 17:50-18:00 | CP-02 | Company Presentation: Horiba India Pvt. Ltd |
| 18:00-18:10 | CP-03 | Company Presentation: Simco Global Tech.sys. Ltd |
| 18:10-18:20 | CP-04 | Company Presentation: Laser Spectra Services |
| End of Day -01 | | |
| 19:30 | Dinner: NPL Guest House | |

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| Day-02, Sunday, 26th November, 2023 | | |
| Technical Session-03: Ultrafast Spectroscopy-I | | |
| Chairperson: Dr. H N Ghosh, NISER, Bhubaneswar | | |
| 9:30-10:00 | IT-06 | Femtosecond Laser Induced Spin Dynamics in Ferromagnetic Thin Films and Synthetic Heterostructures: Towards Ultrahigh Speed Spintronics Prof. Anjan Barman, S.N. Bose National Centre for Basic Sciences, Kolkata |
| 10:00-10:30 | IT-07 | To and Fro Hot and Ultrafast Electron Transfer in from CdTe QD-Porphyrin Hybrid Nanostructures Dr. Prakriti Ranjan Bangal, ICT, Hyderabad |
| 10:30-10:45 | CT-02 | Controlled Coherent Electronic Excitation in Molecules – From Quantum Information to Chirality Dr. Jayanta Ghosh, Institut für Physik, Universität Kassel, Germany |
| 10:45-11:00 | CT-03 | Solvent-Separated and Contact Ion-Pair Azide Interactions with Imidazole and 1-Methylimidazole in DMSO: Ultrafast IR Pump-Probe Spectroscopy |

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| | | Dr. Debkumar Rana , Max Born Institute, Berlin, Germany |
| 11:00-11:15 | | Tea Break, A.R. Verma Lawn |
| Technical Session-04: Terahertz Spectroscopy & Imaging -I | | |
| Chairperson: Prof. S. S. Prabhu, TIFR Mumbai | | |
| 11:15-11:45 | IT-08 | THz Spectroscopic Probes for Emergent Quantum Materials Dr. D.S. Rana , IISER Bhopal |
| 11:45-12:15 | IT-09 | Tunable Terahertz Generation and Imaging Dr. Nimish Dixit , Instruments R&D Establishment, Dehradun |
| 12:15-12:45 | IT-10 | THz Acoustic Phonon Optics Dr. Rajeev Kinni , IISER Thiruvananthapuram |
| 12:45-13:00 | CT-04 | Oriental Dynamics of Water at ion-water Interface: A perspective from Terahertz Spectroscopy Dr. Abhishek K. Singh , Virginia Tech, USA |
| 13:00-14:00 | | Lunch Break, NPL Cafeteria |
| 14:00-15:00 | | Poster Session – II, Library Corridor |
| Technical Session-05: Ultrafast Spectroscopy –II | | |
| Chairperson: Dr. Anjan Barman, S N Bose National Centre for Basic Sciences, Kolkata | | |
| 15:00-15:30 | IT-11 | Ultrafast Charge Carrier Dynamics in Two-Dimensional Transition-Metal Dichalcogenides Dr. Suman Kalyan Pal , IIT Mandi |
| 15.30-16:00 | IT-12 | Revealing the Emergence of an e-h Quantum Liquid Phase on Ultrafast Timescales in Low-Dimensional MoS ₂ Dr. Siva Ramakrishna , IIT Madras |
| 16:00-16:15 | CT-05 | Laser Matter Interactions at Nanoscale for Multifunctional Applications Dr. Parvathy Nancy , Mahatma Gandhi University, Kottayam |
| 16:15:16:30 | | Tea Break: A. R. Verma Lawn |
| 16:30-16:45 | CT-06 | Tuning Ultrafast Magnetization Dynamics of Gallenol Films with Tilt Magnetic Anisotropy Dr. Ajit Kumar Sahoo , SNBI |
| 16.45-17.00 | CP-05 | Company Presentation: ATOS Instruments Marketing Services |
| 17:00-17:10 | CP-06 | Company Presentation: DynoTech. Ltd |
| 17:10-17:20 | CP-07 | Company Presentation: Trokut Solutions |
| 17:20-17:30 | CP-08 | Company Presentation: Anatech laser Inst. Pvt ltd |
| 17:30-17:40 | CP-09 | Company Presentation: New Age Inst. Pvt ltd |
| 17:40-17:50 | CP-10 | Company Presentation: SM Creative |
| 17:50-18:00 | CP-11 | Company Presentation: Advanced Photonics |
| End of Day-02 | | |
| 19:30 | | Conference Dinner: Director's Bungalow |

Day-03, Monday, 27th November, 2023

Technical Session-06: Ultrafast Spectroscopy -II

Chairperson: Dr. Shovan Pal, NISER, Bhubaneswar

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| 9:30-10:00 | IT-13 | Micro-Nano Manufacturing using Ultra-short pulsed lasers – Challenges and Opportunities Dr. Nagahanumaiah , Director, CMTI Bengaluru |
| 10:00-10:30 | IT-14 | Dual-Color Pump-Probe Technique to Probe the Dynamics of Excitons and Trions in 2-Dimensional Materials Dr. Salahuddin khan , RRCAT, Indore |
| 10:30-11:00 | IT-15 | Topological Insulator Nanophotonics Dr. Harish N S Krishnamoorthy , TIFR-Hydrabad |
| 11:00-11:15 | Tea Break, A.R. Verma Lawn | |
| 11:15-11:30 | CT-07 | Evidence of Super Diffusive Spin Current Arising From Ultrafast Demagnetization Process Dr. Susmita Saha , Ashoka University |
| 11:30-11:40 | CP-12 | Company Presentation: Infra-Red/ Edmund |
| 11:40-11:50 | CP-13 | Company Presentation: Menlo System Pvt. Ltd |

Technical Session-07: Terahertz in Biology and Communications

Chairperson: Dr. Anil Malik, CCS University, Meerut

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| 11:50-12:20 | IT-16 | Solvation Dynamics Around Hydrophobic Solutes: An Insight From THz Spectroscopy Dr. Rajib Mitra , S N Bose National Centre for Basic Sciences, Kolkata |
| 12:20-12:35 | CT-08 | Terahertz Image Processing – Comparison of Different ML Architectures for Resolution Enhancement and Object Segmentation Dr. Shyamal Mondal , DIAT, Pune |
| 12:35-12:50 | CT-09 | Use of Maxwell Garnet and Cross-correlation Techniques in THz Domain for Meeting the Challenges of Spectroscopy and Imaging of Organic Solid And Liquid Molecules Prof. A.K. Chaudhary , (ACRHEM), University of Hyderabad |
| 12:50-13:05 | CP-14 | Company Presentation: Agmatel / Key sight |
| 13:05-14:00 | Lunch Break, NPL Cafeteria | |
| 14:00-14:30 | IT-17 | On-Chip THz Silicon Topological Photonics for 6G to XG Wireless Dr. Ranjan Singh , NTU, Singapore |
| 14:30-14:45 | CT-10 | THz-Time Domain Spectroscopy of Transition Metal Oxides Dr. L. S. Sharath Chandra , RRCAT, Indore |
| 14:45-15:30 | Valedictory Session | |
| 15:30-16:00 | Tea Break, A R Verma Lawn | |

End of Day -03