



CONFERENCE PROGRAM

SmartMat 2025

November 21, 2025

Al-Quds Amphitheatre, Faculty of Sciences of Sfax

University of Sfax, Tunisia

<https://www.tu-chemnitz.de/etit/messtech/SmartMat2025/>

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CONFERENCE VENUE

Al-Quds Amphitheatre

Faculty of Sciences of Sfax
University of Sfax
Soukra Road km 4, BP 1171
3000 Sfax, Tunisia

Date: November 21, 2025

The venue offers full audiovisual support and Wi-Fi access, and is close to public transportation.



**Entrance to
SmartMat 2025
Conference**

PROGRAM AT A GLANCE

Session	Topic	Posters
1	Piezoelectric Materials and Vibration Energy Harvesting	P06, P22, P34, P35, P45, P48
2	Sensors, Biosensors and Measurement Methods	P02, P03, P07, P20, P26
3	Organic–Inorganic Hybrid Materials	P04, P28, P38, P43, P44
4	Functional Ceramics for Electronics and Energy Storage	P05, P08, P13, P23, P24, P37
5	Photocatalysis and Metal Oxide Nanomaterials	P01, P14, P21, P40, P42
6	Water and Wastewater Treatment	P27, P30, P33, P36
7	Natural Fibre Composites: Mechanics, Modelling and Manufacturing	P10, P18, P25, P29, P31
8	Bio-Based Polymers and Nanocellulose	P09, P11, P15, P19, P47
9	Biomaterials and Natural Bioactive Compounds	P12, P16, P17, P32
10	Circular Economy and Waste Valorisation	P39, P41, P46

TECHNICAL PROGRAM

Session 1 Piezoelectric Materials and Vibration Energy Harvesting		
P06	Design of Flexible Magnetoelectric Composites Through Microstructural Engineering for Vibration Energy Harvesting	<i>Mohamed Ali Tahri, Ayda Bouhamed, Anouar Njeh</i>
P22	Integration of Smart Piezoelectric Systems for Vibration Energy Recovery in Electric Vehicles	<i>Amel Bouaziz, Ikram Saanoun</i>
P34	Scandium-Induced Tuning of Lamb ZGV Modes in AlScN Piezoelectric Semiconductor Thin Films	<i>Abderrahmen Dhib, Anouar Njeh, Cherif Othmani, Farid Takali, Issam Ben Salah</i>
P35	Sustainable High-Performance Piezoelectric Generators Reinforced with Date Palm Fibers in PDMS/BaTiO ₃ Composites	<i>Mohamed Dhia Ayadi, Slim Naifar, Mohamed Khlif, Bassem Zouari, Olfa Kanoun</i>
P45	Theoretical Study of Lamb Wave Modes in Chitosan/BaTiO ₃ Composite Films	<i>Rim Gharsellaoui, Farid Takali, Anouar Njeh</i>
P48	Vibration-Based Energy Harvesting Using Piezoelectric Materials	<i>Ikram Saanoun, Amel Bouaziz</i>

Session 2 Sensors, Biosensors and Measurement Methods

P02	A New Multifunctional Copper Iodide Pyrazine Hybrid for Sensitive Creatinine Detection in Biological Samples: Synthesis, Structural Features, Characterization, and Electrochemical Evaluation	<i>Wisseem Hallab, Ahlem Guesmi, Raja Jlassi, Jassem Wannassi, Nouredine Mhadhbi, Abdellah Tahiri, Wesam Abd El-Fattah, Naoufel Ben Hamadi, Houcine Barhoumi, Houcine Naïli</i>
P03	Acoustic Travel-Time Tomography (ATOM) for 2D and 3D Indoor Temperature Reconstruction Using an Inverse Legendre Polynomial Method	<i>Abir Dardouri, Anouar Njeh, Cherif Othmani, M. Ercan Altinsoy, Zehua Dou, Farid Takali</i>
P07	Design of an Innovative Colorimetric pH-Sensitive Film Based on CMC, Flaxseed Gum, and Beetroot Peel: An Effective Indicator for Monitoring Meat Freshness	<i>Moufida Chaari, Khaoula Elhadeb, Sarra Akermi, Monia Ennouri, Slim Smaoui</i>
P20	Highly Photoluminescent Carbon Dots: A Multifunctional Platform for pH Sensing, Nanothermometry, and Mercury (II) Detection	<i>Mouna Fhoula, Ikhlas Kchaou, Christian Hernández-Álvarez, Mohamed Dammak, Sami Boufi, Inocencio R. Martin</i>
P26	New Biosensors Based on DNA Derivatives: DFT Study	<i>Nour Elyakine Amraoui, Mona Boudiaf</i>

Session 3 Organic-Inorganic Hybrid Materials

P04	Bridging Structure and Function in the Hybrid Semiconductor [(CH ₃ NH ₃) ₂ CdBr ₄]: A Combined Experimental and Theoretical Study	<i>Sawssan Jaballi, Abderrazek Oueslati, Anouar Njeh</i>
P28	Optical and Computational Insights into the Structure and Biological Potential of Novel Compounds: 1H-Benzotriazolium Bromide Dihydrate and Hexamethylenediaminium Dibromide	<i>Sandra Walha, Ali Ben Ahmed, Houcine Naïli</i>
P38	Structural, Optical and Electrical Conductivity of a Novel Tin-Based Organic-Inorganic Hybrid	<i>Siwar Fridhi, Abderrazek Oueslati</i>
P43	Structural, Spectroscopic, and Optical Properties of Bis(4-acetylanilinium) Tetrabromozincate(II)	<i>Mohamed El Gheith Hema, Souad Chkoundali</i>
P44	Tailoring the Properties of (C ₆ H ₉ N ₂) ₂ SnX ₆ Through Halogen Substitution for Optoelectronic Devices	<i>Iheb Garoui, Abderrazek Oueslati</i>

Session 4 Functional Ceramics for Electronics and Energy Storage

P05	Correlation Between Electrical Conduction and Dielectric Relaxation in RENbO ₄ Niobates	<i>Mohamed Mounir Bouyazani, Abdelhedi Aydi</i>
P08	Development of Advanced Silicate-Based Cathode Material for Sodium-Ion Batteries by Improved Solid-State Method	<i>Kawthar Trabelsi, Karim Karoui, Abdelfattah Mahmoud, Jerome Bodart, Frederic Boschini, Abdallah Ben Rhaïem</i>
P13	Electrical and Dielectric Characterization of SmCrO ₃ Ceramics Toward Thermistor and Capacitor Applications	<i>Wiem Boujelbene, A. Ben Jazia Kharrat, K. Khirouni, W. Boujelben</i>
P23	Investigation of Na ⁺ Ion Conduction, NTCR Behavior, and Dielectric Relaxation Mechanisms in Na ₂ NiP ₂ O ₇ Pyrophosphate Solid Electrolyte	<i>Imen Gharbi, Abderrazek Oueslati</i>
P24	Magnetic and Magnetocaloric Effect of Nanosized La _{0.75} Sm _{0.05} Sr _{0.2} MnO ₃ Manganite	<i>C. Majjedi, A. Elghoul, A. Krichene, N. Chniba Boudjada, W. Boujelben</i>
P37	Structural, Electrical, and Optical Properties of Ca and Sr Doped LaNbO ₄ Ceramics	<i>Samia Aydi, Abderrazek Oueslati</i>

Session 5 Photocatalysis and Metal Oxide Nanomaterials		
P01	A Comparative Study of the Physicochemical Properties of ZnO and TiO ₂ and Their Impact on Photocatalytic Activity	<i>N. Khilfi, C. Zerrouki, H. Guermazi, N. Fourati, S. Guermazi</i>
P14	Enhancement of the Structural and Optical Properties of ZnO Nanosheets Through W Cation Incorporation, Synthesized via the Precipitation Method	<i>Wisse Ben Soltan, Imen Souli, Thierry Toupance, Wenlong Wang</i>
P21	Impact of Lithium on the Physical Characteristics of ZnO Nanoparticles: Enhancing the Dielectric and Photocatalytic Properties for Various Applications	<i>Hajer Saadia, Zohra Benzarti</i>
P40	Synergistic Efficiency of Photocatalytic Mixed Matrix Membranes for Pharmaceutical Degradation	<i>Hajer Aloulou, Zouhair Salah, Raja Ben Amar</i>
P42	Synthesis of Sustainable Hybrid Photocatalyst Based on Clay and Polymer for Textile Wastewater Treatment	<i>Afef Attia, Nouredine Elboughdiri, Djamel Ghernaout, Benjamin Carbonnier, Samia Mahouche-Chergui, Raja Ben Amar</i>
Session 6 Water and Wastewater Treatment		
P27	Nitrogen and Organic Load Removal from Cheese Whey Wastewater by Anodic Oxidation	<i>Imen Souli, Annabel Fernandes, Ana Lopes, Inês Gomes, Alexandra Afonso, Lazhar Labiadh, Salah Ammar</i>
P30	Oversight and Evaluation of Irrigation Groundwater Quality Through the Application of Machine Learning Techniques	<i>Rania Jradi</i>
P33	Removal of Rhodamine B by Adsorption on Activated Carbon Prepared from Date Stones	<i>Mohamed Ismail, Sandra Dammak, Hedi Ben Amor</i>
P36	Smart Functional Bio-Based Materials for Safe Effluents	<i>Zahra Sayouri, Souhir Abdelmoumen, Bisma Khiari, Mejdi Jeguirim</i>
Session 7 Natural Fibre Composites: Mechanics, Modelling and Manufacturing		
P10	Digital Image Correlation Technique to Evaluate Desiccation Cracking in Alfa Fiber Reinforced Clayey Soil	<i>Fatma Louati, Rania Chaari</i>
P18	Fatigue Performance of Natural Fiber-Reinforced Polymer Composites: Critical Factors and Failure Mechanisms	<i>Yessin Sahnoun, Slim Naifar, Neila Khabou Masmoudi</i>
P25	Micromechanical Modeling of Date Palm Fiber Composites: Comparative Evaluation of Analytical and Numerical RVE Approaches	<i>Slim Naifar, Aziz Garrach, Fatma Benbrahim, Neila Masmoudi, Olfa Kanoun</i>
P29	Optimization and Microstructural Characterization of 3D-Printed Honeycomb and Porous Polymeric Structures via FDM	<i>Rania Chaari, Fatma Louati, Mohamed Khelif, Hedi Nouri</i>
P31	Prediction and Analysis of the Impact of Alkaline Treatment on the Mechanical Properties of Palm Fiber-Reinforced LDPE Composite	<i>Omar Cheikh Rouhou, Ayda Bouhamed, Neila Khabou Masmoudi, Olfa Kanoun</i>

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P11	Eco-Friendly Biocomposite Films Based on PVA, Gelatin and Pollen: Structure, Thermal and Dielectric Properties	<i>Khouloud Bahloul, Mourad Arous</i>
P15	Enhancing the Mechanical and Fire-Resistant Properties of Bio-Based Boards Using Lignocellulosic Nanofibers	<i>Amira Najahi, Roberto J. Aguado, Quim Tarrès, Sami Boufi, Marc Delgado-Aguilar</i>
P19	Green Esterification of Starch Using Deep Eutectic Solvents and Reactive Twin-Screw Extrusion: Enhancing Mechanical, Rheological, and Hydrophobic Properties	<i>Samar Bouzidi, Jean-Marc Lévêque, Albert Magnin, Sonia Moulina Boisseau, Jean-Luc Putaux, Sami Boufi</i>
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Session 9 Biomaterials and Natural Bioactive Compounds

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P16	Enhancing the Ultrasound-Assisted Extraction of Phenolics from <i>Verbena officinalis</i> L. by Response Surface Methodology and Evaluating Their Antioxidant Properties	<i>Hajer Riguene, Souad Dali, Ridha Ben Salem, Ghayth Rigane</i>
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P32	Rapid-Apatite-Inducing and Corrosion-Protective Bio-Piezoelectric Coating on 316L Stainless Steel	<i>Nesrine Guesmi, Ayda Bouhamed, Siwar Sakka, Jamel Bouaziz, Anouar Njeh, Olfa Kanoun</i>

Session 10 Circular Economy and Waste Valorisation

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