

JSTMM2024 - Conference program

Friday December 20, 2024	
08H00	Registration
09H00	Conference opening
SESSION 1	
Moderators : Pr. Tarek BOURAOUI and Pr. Mohamed Ali TERRES	
09H30-09H50	Fabrication d'implants et instruments orthopédiques : expérience d'une industrie tunisienne <i>Emna GUIRAT, SOFEMED</i>
09H50-10H10	Analyse du mouvement avec les nouvelles technologies <i>Saber ABID, ENSIT</i>
10H10-10H30	L'impression 3D et applications en orthopédie <i>Haythem ZOUAOUI (Zcare) / Hssan HCHICHA</i>
10H30-10H50	Apport de l'IA en orthopédie <i>Khaoula TBARKI / Mehdi MEDDEB</i>
10H50-11H10	Les calculs numériques et le Machine Learning dans le contrôle qualité des dispositifs médicaux <i>Emna GUIRAT, SOFEMED</i>
11H10-11H30	Coffee Break
11H30-13H00	TABLE RONDE: Implants et instruments orthopédiques par fabrication additive Présidée par Pr. Mondher MESTIRI
	<ul style="list-style-type: none"> • Mot d'ouverture • Fabrication additive métallique en Tunisie : une alternative aux méthodes conventionnelles • Applications de la fabrication additive en orthopédie • Débat, synthèse et recommandations

Lunch

SESSION 2: MATERIAUX AVANCES (MATERIAUX ARCHITECTURES)	
Moderators: Pr. Nizar BEN SALAH & Pr. Salah MEZLINI	
14H15-15H00	Plenary 1: Matériaux avancés: Recherche et innovation au cœur du progrès scientifique et technologique <i>Pr. Tarek BOURAOUI</i>
15H00-15H15	MA-S2-1: Enhancing Mechanical Properties of Zr-Cu-Ni-Al Metallic Glass Through Ball Burnishing <i>Sami BOUZAYENI, Fathi GHARBI, Tarek BEN AMEUR and K. J. Al-FADHALAH</i>
15H15-15H30	MA-S2-2: Role of fibre-matrix interface on dielectric and mechanical behaviour of glass fibre reinforced epoxy composites <i>Chadia TURKI, Nizar BEN SALAH and Michelle SALVIA</i>
15H30-15H45	MA-S2-3: Numerical modeling of hydrophilic and mechanical behavior of bio-composite materials during drying <i>Houda HACHEM and Daoued MIHOUBI</i>
15H45-16H00	MA-S2-4: Simulation numérique de la masse osseuse dans la région de l'interface os cortical/os trabéculaire <i>Imed SOLTANI and Abdelwahed BARKAOUI</i>
16H00-16H15	MA-S2-5: Flambage et post-flambage des structures cellulaires bio-inspirées <i>Ilef SFAR, Meriem BELHADJ AMOR, Saoussen BELGHITH and Salah MEZLINI</i>
16H15-16H45	Coffee Break and Posters Session 1
SESSION 3: MATERIAUX AVANCES (BIOMATERIAUX)	
Moderators: Pr. Farhat GHANEM & Pr. Tarek HASSINE	
16H45-17H00	MA-S3-1: Tribological behaviour of High-Density Polyethylene reinforced with olive stone flour <i>Ela OMHENI, Hend BEN HADJ SALAH and Saoussen BELGHITH</i>
17H00-17H15	MA-S3-2: Experimental characterization of plaster/Amend shell powder composites for sustainable insulation, <i>Hédi BELFKIH, Houda HACHEM and Daoued MIHOUBI</i>
17H15-17H30	MA-S3-3: Experimental investigation of hot air welding process of PVDF polymer <i>Chayma HIDRI, Lamis ALLEGUE, Ated BEN KHLIFA and Mondher ZIDI</i>
17H30-17H45	MA-S3-4: Optimizing drilling conditions for GFRP composites: Impact on delamination of clamping holes <i>Mohamed BEN NASSER, Nadia GUENI, Bilel REZGUI and Alex MONTAGNE</i>
17H45-18H00	MA-S3-5: Effect of Spent Coffee Grounds Content (SCG) on Rheological and Mechanical Properties of PLA-SCG Composites <i>Oumaima BOUGHANMI, Lamis ALLEGUE, Haykel MAROUANI and Ahmed KOUBAA</i>
18H00-18H15	MA-S3-6: Performance Optimization of Sub-stiffened Composite Panels Under Uniaxial Compression Loading <i>Hamda CHARGAOUI and Mohamed SOULA</i>

Saturday December 21, 2024

SESSION 4: PROCEDES AVANCES (USINAGE NON CONVENTIONNEL)
Moderators: Pr. Nabil BEN FREDJ & Pr. Abdelwahed BARKAOUI

08H30 – 9H15	Plenary 2: Caractérisation, Modélisation Et Simulation Des Structures Obtenues Par La Fabrication Additive <i>Pr. Sami CHATTI</i>
09H15-09H30	PA-S4-1: Finite element and Sensitivity of parameters study of friction stir-welding process for aluminum alloys <i>Mohamed BEN HOISSA and Temim ZRIBI</i>
09H30-09H45	PA-S4-2: Formability of thin SS304 steel sheets: Consideration of blank geometry <i>Mohamed BEN NASSER, Mohamed Toumi NASRI, Jawaher LEFI and Romdhane OTHMANI</i>
09H45-10H00	PA-S4-3: Assessing fatigue strength in material with hole defects under tensile loading using the affected depth approach <i>Marwa YOUSSEF, Anouar NASR and Nesrine MAJED</i>
10H00-10H15	PA-S4-4: Numerical Investigations for the Development of a Digital Twin for Underground Mine Ventilation Systems <i>Seif Eddine BEN YOUSSEF, Haykel MAROUANI and Hatem MRAD</i>
10H15-10H30	PA-S4-5: Vibration reduction performance of a rotor-bearing system using a magneto-rheological elastomer, <i>Faiza SAKLY and Mnaouar CHOUCANE</i>
10H30-10H45	PA-S4-6: Characterization of Tube Thermoforming Process using the Taguchi Method <i>Mouhamed Hichem HABOUBA, Seddik SHIRI, Ali TRABELSI and Mohamed Ali REZGUI</i>
10H45-11H15	Coffee Break and Posters Session 2
SESSION 5: MATERIAUX AVANCES (NANOMATERIAUX) Moderators: Pr. Sami CHATTI (ISSATSo) & Pr. Amna ZNAIDI	
11H15-11H30	MA-S5-1: Characterizing the true stress-strain curve of CrAIN monolayer coatings using finite element-reverse analysis <i>Yamen BEN AMMAR, Faker BOUCHOUCHA, Adnan GASSARA, Khalil AOJADI and Corinne NOUVEAU</i>
11H30-11H45	MA-S5-2: Self-Disinfecting Thin Films Deposited on 316L Stainless Steel for Enhanced 3 Surface Hygiene <i>Kaouther KHLIFI, Zied MANNAI, Wiem BOUSLAMA, Lamjed BOUSLAMA, Fatma NOUIRA and Amel SAMET</i>
11H45-12H00	MA-S5-3: Electrochemical impedance spectroscopy of TiO ₂ -ZnO nanocomposites deposited by spray pyrolysis <i>Jassem KAMMOUN, Hafedh DHIFLAOUI and Naoufel BEN MOUSSA</i>
12H00-12H15	MA-S5-4: Surface enhancement of stainless-steel parts produced by LPFB through finishing treatments <i>Mannena SAHRAOUI, Houda YAHYAOU, Naoufel BEN MOUSSA and Mohamed HABIBI</i>
12H15-12H30	MA-S5-5: Impact of crystallographic structures on the corrosion resistance of AISI 304L processed by machining and deep rolling <i>Khouloud GHARBI, Naoufel BEN MOUSSA and Nabil BEN FREDJ</i>
12H30-12H45	MA-S5-6: Improvement of the Wear Resistance of Hardox 400 steel by duplex Treatment Combining Gas Carburizing and PVD <i>Abir KHALDI, Abdelkarim GHANEM and Mohamed Ali TERRES</i>

Lunch

SESSION 6: PROCEDES AVANCES (FABRICATION ADDITIVE METALLIQUE)
Moderators: Pr. Noureddine BEN YAHIA & Pr. Brahim BEN FATHALLAH

14H00- 14H45	Plenary 3: Modélisation avancée et pronostique en biomécanique des matériaux pour l'ingénierie biomédicale <i>Pr. AbdelWahed BARKAOUI</i>
14H45- 15H00	PA-S6-1: Enhancing WAAM-CMT Weld Bead Geometry for Thin-Walled Applications : A Multi-Objective Optimisation Approach via Response Surface Methodology <i>Oussama TRAD, Ated BEN KHALIFA, Farhat ZEMEMI and Hédi HAMDJ</i>
15H00-15H15	PA-S6-2: Experimental investigations on Wall Geometry and Waviness of a Single Layer Formed by CMT-WAAM of SS 308L <i>Imed HAJJAJI, Ated BEN KHALIFA, Ezzeddine FTOUTOU, Mihed BENSALID and Moez TRIGUI</i>
15H15-15H30	PA-S6-3: Numerical Simulation of the 3D Printing SLM Process for a Ti-6Al-4V Medical Femoral Implant <i>Amal TOUMI, Mounir FRIJA and Raouf FATHALLAH</i>
15H30-15H45	PA-S6-4: Effect of manufacturing parameters on the hardness of electron-beam melted maraging steel <i>Ameni CHAABENE, Slim BEN ELECHI, Sami CHATTI and Mohamed Kheil GUERICH</i>
15H45-16H00	PA-S6-5: Grain orientation in LPBF: the impact of laser power and scanning speed <i>Nada HASSINE, Sami CHATTI and Lioua KOLIS</i>
16H00-16H15	PA-S6-6: Optimization of Metal Additive Printing Parameters in Selective Laser Melting of Ti6Al4V Parts <i>Oumaima ROUIS and Mounir FRIJA</i>
16H15-16H00	PA-S6-7: Analysis of the Mechanical Behavior of 17-4PH Stainless Steel Parts Produced by Selective Laser Melting <i>Jassem HMIDA, Mounir FRIJA and Ated BEN KHALIFA</i>
16H00-16H30	Coffee Break and Posters Session 3
SESSION 7: PROCEDES AVANCES (INTELLIGENCE ARTIFICIELLE APPLIQUEES AUX PROCEDES) Moderators: Pr. Sami CHATTI (ENIM) & Pr. Mohamed Ali REZGUI	

16H30-16H45	PA-S7-1: Prediction of the ring hoop tensile stress-strain curve for anisotropic tubes using convolutional neural networks <i>Zied KTARI and Ali KHALFALLAH</i>
16H45-17H00	PA-S7-2: Optimization of V-Bending for Grade 4A Titanium: A Combined Experimental and Artificial Intelligence Approach <i>Hamza GUELBI, Sami CHATTI and Mohamed Ali TERRES</i>
17H00-17H15	PA-S7-3: Experimental approach and clustering of roughness during hard milling of D2 steel, <i>Abdallah SOUID, Walid JOMAA and Mohamed Ali TERRES</i>
17H15-17H30	PA-S7-4: Experimental investigation of printing parameters and AI prediction of the mechanical behavior of PLA-Wood <i>Houda KHATERCHI, Mondher NASRI, Lamis ALLEGUE, Ated BEN KHALIFA and Mondher ZIDI</i>
17H30-17H45	PA-S7-5: Multi-objective optimization of cutting parameters for dry drilling of AISI 340 25-20 steel <i>Romdhane OTHMANI, Mohamed BEN NASSER, Biel YOUNSI and Nouredine BEN YAHIA</i>
17H45-18H00	PA-S7-6: New analysis tools for A I modeling of large deformation extruded Microstructured Optical Fibers glass preforms <i>Manel ABDA, Mohamed TRABELSSI and Nouredine BEN YAHIA</i>

Sunday December 22, 2024

SESSION 8: PROCEDES AVANCES (FABRICATION ADDITIVE POLYMER)

Moderators: Pr. Moez TRIGUI & Pr. Farhat ZEMZEMI

08H30 – 9H00	PA-S8-1: Robotic 3D Concrete Printing in the service of Automated Reconstruction <i>Mouad EL MESOUDY, Rida FOULKI and Driss AMEGOUZ</i>
09H00 – 9H15	PA-S8-2: The mechanical impact of AM adaptive slicing on a NACA 4412 airfoil <i>Ahmed EL AYEB, Farhat ZEMZEMI and Borhen LOUHICHI</i>
09H15-09H30	PA-S8-3: Optimizing Dimensional Accuracy in Fused Deposition Modeling (FDM) Using NSGA-II Algorithm <i>Amani GHDAMSI, Farhat ZEMZEMI, Ameni ELTAIEF and Sami CHATTI</i>
09H30-09H45	PA-S8-4: Evaluation of 3D printed polycarbonate adhesive joints: effects of bio-surface patterns and plasma treatment <i>Nidhal NAAT, Sami NAIMI, Yasmina BOUTAR and Salah MEZLINI</i>
09H45-10H00	PA-S8-5: The Influence of Additive Manufacturing on Fatigue Behavior in Orthopedic Implants: A Comprehensive Review <i>Khaoula HERGLI, Haykel MAROUANI and Salah MEZLINI</i>
10H00-10H15	PA-S8-6: Optimization of fused deposition modeling process parameters to maximize tensile strength of PLA filament material <i>Khaled BOULAHM, Seddik SHIRI, Badreddine LARBI, Mohamed Toumi NASRI and Ated BEN KHALIFA</i>
10H15-10H30	PA-S8-7: Experimental Investigations of the Influence of Spent coffee grounds content on PLA based Composite for 3D Printing <i>Oumaima BOUGHANMI, Lamis ALLEGUE, Haykel MAROUANI and Ahmed KOUBAA</i>
10H30-11H00	Coffee Break

SESSION 9: MATERIAUX AVANCES (BIOMATERIAUX)

Moderators: Pr. Haykel MAROUANI & Pr. Kaouther KHLIFI

11H00-11H15	MA-S9-1: Influence of Manufacturing Processes on the Mechanical Properties of Composites Reinforced with Palm Fibers <i>Badreddine LARBI, Marwa LAHOUIOUI, Magali FOIS and Mohamed Toumi NASRI</i>
11H15-11H30	MA-S9-2: Transforming Polyethylene Waste into Innovative Materials through Dolomite and Calcite Blends <i>Najoua BARHOUMI, Sameh ATTIA-ESSAIES, Mahdi ISMAIL, Aymen BEN AHMED, Ezzedine SRASRA and Asma NOUIRA</i>
11H30-11H45	MA-S9-3: Mechanical properties of natural Fibre Reinforced Mortar <i>Asma ELOUDIANI, Yosra GLOUIA, Aymen BRINSI and Rabii BEN SGHAIER</i>
11H45-12H00	MA-S9-4: Experimental tests and numerical validation of a wrist-hand orthosis <i>Khaled BEN AMOR, Sami CHATTI and Borhen LOUHICHI</i>
12H00-12H15	MA-S9-5: A Hybrid AHP-PROMETHEE Decision Method and Machining Feature Interactions <i>Hadhami BENSLAMA, Raoudha GAHA, Sami CHATTI and Abdelmajid BENAMARA</i>
12H15-12H30	MA-S9-6: Optimization of Cutting Parameters for Trimming Laminated Composite Materials Through Vibration Monitoring <i>Sirine STAMBOULI, Ezzeddine FTOUTOU, Imed HAJJAJI and Mihed BEN SAID</i>

12H30-13H00

Conference closing

SESSION POSTERS 1**Moderators: Dr. Ated BEN KHALIFA & Dr. Houda YAHYAOUI**

- POS1-1: Correlation between dielectric and friction behaviour of glass fibre reinforced epoxy composites
Chadia TURKI, Nizar BEN SALAH
- POS1-2: Effect of Anodization Time on the Mechanical and Tribological Properties of Titanium Dioxide (TiO₂)
Jaber GHOZLANI, Hafedh DHIFLAOUI, Anouar HAJJAJI and Mohamed Ali TERRES
- POS1-3: Microstructural investigation of selective laser melted Titanium Ti6Al4V for biomedical applications
Houda YAHYAOUI, Houcem Eddine KORTLI, Naoufel BEN MOUSSA and Mohamed HABIBI
- POS1-4: Tailoring the Mechanical and Thermal Properties of PEEK with Hydroxyapatite Addition for Enhanced Orthopedic Performance
Mohamed TIMOUMI, Najoua BARHOUMI, Amna ZNAIDI, Abderrahim MAAZOUZ and Khalid LAMNAWAR
- POS1-5: Investigating the mechanical and antimicrobial of denture base resin 3 containing copper oxide nanoparticles
Chokri BEN AISSA, Najoua BARHOUMI, Wiem BOUSSLAMA, Kaouther KHLIFI, Ines KARKOUCH and Rafika BEN SGHAIER
- POS1-6: Eco-Friendly Polypropylene Composite Reinforced with Natural Fillers: Mechanical 4 Properties and Wear Resistance
Mohamed Salah ATALLAH, Najoua BARHOUMI, Sameh ATTIA-ESSAIES, Abdelkarim GHANEM, Amel SAMET, and Kaouther KHLIFI
- POS1-7: Copper- oxide coating to combat viral infection surfaces: Antiviral and mechanical efficacy
Zied MANNAI, Kaouther KHLIFI, Wiem BOUSSLAMA, Lamjed BOUSSLAMA, Fatma NOUIRA and Amel SAMET
- POS1-8: Valorization of Polyethylene Waste through Blending with Dolomite and Calcite Fillers: Structural Properties
Sameh ATTIA-ESSAIES, Najoua BARHOUMI, Mahdi ISMAIL, Aymen BEN AHMED, Ezzedine SRASRA and Asma NOUIRA
- POS1-9: Stress Intensity and Crack Bulging Analysis in Pressurized Aircraft 3 Fuselage Panels via Finite Element Method
Maher BOUAZIZI, Mohamed SOULA and Tarek LAZGHAB

SESSION POSTERS 2**Moderators: Dr. Fathi GHARBI & Dr. Najoua BARHOUMI**

- POS2-1: Determination of mechanical parameters of 3D-printed parts: Experimental and numerical analyses
Chaima GAIED and Sami CHATTI
- POS2-2: Contribution of the potential of additive manufacturing technologies to the performance of orthopedic implants
Ameni ELABED, Houda YAHYAOUI and Naoufel BEN MOUSSA
- POS2-3: Leveraging AI and LLMs for Additive Manufacturing: Uncovering Defect Types and Root Causes
Sana ANIBA, Taher EL HADDAD and Noureddine BEN YAHIA
- POS2-4: Additive Manufacturing in Prosthetic Limbs: Robust and Lightweight Parts
Taher ELHADDAD, Kamel BOUSNINA and Noureddine BEN YAHIA
- POS2-5: Automated 3D Reconstruction of Mechanical Components Using Multimodal Deep Learning
Issam Dridi, Noureddine BEN YAHIA
- POS2-6: Innovative Uses of Thermoplastic Polyurethane (TPU) in 3D-Printed Medical Applications
Hanen BOUBAKRI, Naoufel BEN MOUSSA and Mohamed HABIBI
- POS2-7: Topology optimization strategy of medical implants obtained by additive 3 manufacturing
Maryem MABROUK, Mounir FRIJA and Malika KHOUDJA
- POS2-8: Improving Corrosion Resistance of Ti-6Al-4V Biomedical Alloys Using Additive-Assisted Electrical Discharge Machining
Ons MARZOUGUI, Adnene TLILI, Naoufel BEN MOUSSA and Farhat GHANEM
- POS2-9: Design rules guidelines for Wire Arc Additive Manufacturing
Rahma FARAJALLAH, Ezzedine FTOUTOU, Ated BEN KHALIFA and Moez TRIGUI

SESSION POSTERS 3**Moderators: Dr. Slah CHAYOUKHI & Dr. Ezzedine FTOUTOU**

- POS3-1: Impact of tool-electrode material on the performance of Ti6Al4V: A focus on 4 corrosion, wear, and antibacterial activity
Ons MARZOUGUI, Adnene TLILI, Naoufel BEN MOUSSA, Ines KARKOUCH and Farhat GHANEM
- POS3-2: Effect of natural esparto fibers on compressive properties of mortar: Experimental analysis and analytical modelling
Yosra GLOUIA, Asma ELOUDIANI, Aymen BRINSI and Rabii BEN SGHAIER
- POS3-3: Etude expérimentale de formage incrémental à chaud de l'alliage d'aluminium 1050
Bilel YOUNSI, Romdhane OTHMANI and Noureddine BEN YAHYA
- POS3-4: Étude numérique de la sensibilité des paramètres de contact d'une colonne de direction en cas de crash
Cyrine GAIED, Slim BEN ELECHI and Sami CHATTI
- POS3-5: Analyse dynamique non linéaire d'un palier hydrodynamique lubrifié par un fluide non newtonien
Ouafa MERAMRIA and Abderrahim BOUZIANE
- POS3-6: Characterization and Performance Evaluation of Wood Flour-Polypropylene Hybrid Composites
Badreddine LARBI, Mohamed Toumi NASRI, Khaled BOULAHEM and Mahfoudh AYADI
- POS3-7: Evaluating machining process capability index considering measurement system errors
Mohamed GODDI, Adel BRIK, Jamel DHAHRI and Nabil BEN FREDJ
- POS3-8: Integrating the Chaboche Hardening Model into Phase Field Frameworks: A Numerical Study of Fatigue Crack Growth
Iheb ZAYANI, Adel HAMDJ and Khalil MANSOURI
- POS3-9: Innovative PCM Thermal Storage Solutions for Sustainable Hot Water Production
Taufik MEZNI, Mounir GUSEMI and Sameh AGREBI