

People's Democratic Republic of  
Algeria  
Ministry of Higher Education and  
Scientific Research

Ferhat Abbas, Setif University

Institute of Optics and Precision  
Mechanics



الجمهورية الجزائرية الديمقراطية الشعبية

وزارة التعليم العالي والبحث العلمي

جامعة فرحات عباس سطيف  
معهد البصريات وميكانيك الدقة

# Conference schedule

4<sup>th</sup> International Conference on Mechanics  
and Materials (ICMM'23)

## ICMM'23

November 6<sup>th</sup> and 7<sup>th</sup> 2023 Setif, Algeria,



*Organized by*

- Institute of Optics and Precision Mechanics

Ferhat Abbas, Setif 1 University, Setif, Algeria

Research Center in Industrial Technologies (CRTI)

# 4th International Conference on Mechanics and Materials (ICMM'23)

## PROGRAM

<b>Monday 06/11/2023</b>	
8h-9h00	<b>Welcome-Registration</b>
9h00-10h30	<b>Opening Ceremony</b>
10h30-11.00h	<p style="text-align: center;"><b>Plenary Session 1</b>            “Additive Manufacturing to process soft magnetic lattice structures for aeronautical applications”</p> <p style="text-align: center;"><b>Pr. NOUREDINE FENINECHE</b>  <i>ICB UMR 6303, CNRS, Univ. Bourgogne Franche-Comté, UTBM, F-90010 Belfort, France</i></p> <p style="text-align: center;">Introduced by: <b>Pr. A.S. Benammar &amp; Pr. B. Keskes</b></p>
11h00-11h30	Poster Session 1 & Coffee break <b>A. Zegadi &amp; F. Laidoudi</b>
11h30-12.00h	<p style="text-align: center;"><b>Plenary Session2</b>            “Design of A Light Weight Refractory High Entropy Alloy For Industrial Applications”</p> <p style="text-align: center;"><b>Pr. ABDELKRIM REDJAÏMIA</b>  <i>Institut Jean Lamour, Université de Lorraine, UMR CNRS 7198, Nancy, F-54042, France</i>  <a href="mailto:Abdelkrim.redjaimia@univ-Lorraine.fr">Abdelkrim.redjaimia@univ-Lorraine.fr</a></p> <p style="text-align: center;">Introduced by: <b>Pr. E.H. Ouakdi &amp; Pr. R. Draï</b></p>
12h00-12h15	<b>Oral Session1</b> (Chairs: <b>Pr. N. Fenineche &amp; Pr. S. Mouhoubi</b> )
12h00-12h15	<b>B. Bouchoul</b> Étude des propriétés mécaniques des composites à base d'une résine photosensible/TiO <sub>2</sub> pour l'impression 3D par DLP
12h15-12h30	<b>Aimen Aouni</b> Analyzing Friction Models for Predicting Pressure and Shear Stress Distributions in Rolling Processes
12h30-12h45	<b>Djamel Batache</b> Effect of pore shape irregularity on the compressive strength of cellular materials
12h45-13h00	<b>Badis Ouahab</b> Novel Robust Fast Terminal Sliding Mode Controller for Distributed 3-DOF Hover Quadrotor

13h00-13h15	<b>Alrifai Hazem</b> Navigating Roller Bearing Lubrication Regimes with Emphasis on Elastohydrodynamic Lubrication
13h15-13h30	<b>Merabet Safia</b> Effet de la trempe libre du polypropylene isotactique sur les propriétés thermiques
<b>13h30-14h30</b>	<b>Lunch</b>
14h30-15h00	<b>Plenary Session 3</b> “Intergranular Stress Corrosion Cracking Mitigation of Piping Systems”  <b>Pr. ABDELMOUMENE GUEDRI</b> <i>Infra-Res Laboratory, Department of Mechanical Engineering, University of Souk Ahras, Algeria</i> <i>a.guedri@univ-soukahras.dz</i>  Introduced by : <b>Pr. A.K. Redjaimia &amp; Pr. A. Felkaoui</b>
15h00-15h15	<b>Oral Session 2</b> Chairs : <b>Pr. Smata &amp; Pr. F. Keraghel</b>
15h00-15h15	<b>Samir ADJEL</b> Fatigue and Corrosion-Fatigue Defects of Aluminum 1050A
15h15-15h30	<b>Mohamed Hamidouche</b> Effect of welding current on the properties of stainless-steel parts produced by the WAAM-CMT additive manufacturing technique
15h30-15h45	<b>S. DJOUADI</b> Morphological, structural, and magnetic properties of the mechanically alloyed Co63Cr35Mo2 mixture
15h45-16h.00	<b>Mustapha Dahak</b> Experimental and numerical study on free vibration of cracked composite cantilever beam
16h00-16h15	<b>Toufik Bensana</b> The role of vibration analysis in diagnosing rotating machinery failures
16h15-16h30	<b>Lasmi Sofiane</b> Mechanical and thermal properties of poly (ethylene-co-vinyl acetate)/mesoporous silica nanocomposites
16h30-16h45	<b>Amine Hamdi</b> Machinability assessment of unreinforced polypropylene (PP) in turning: study of roughness, temperature, and specific cutting energy
16h45-17h30	Poster Session 2 & Coffee break <b>H. Ferhat &amp; B. Bouchoul</b>

## Tuesday 07 / 11 / 2023

8h30-9h30	<b>Plenary Session 3</b>  <b>“start-up : ideas and achievements ”</b>  <b>M<sup>me</sup> K. BENCHOUFI</b> , Incubateur & Chargée du design, société Brandt Samha Sétif Introduced by : <b>Pr. A.L. Hamouda &amp; Pr. M. Kolli</b>
	<b>Oral Session 3</b> Chairs : <b>Pr. R. Ziani &amp; Pr. F. Djeddou</b>
9h30-9h45	<b>Abderrahmane BEN YAGOUB</b> Suivi cyclique de la durée de vie résiduelle RUL pour le pronostic des défauts de roulements
9h45 – 10h00	<b>Ferhat Hamza</b> Optimization of machining parameters for multi-pass milling processes
10h00 – 10h15	<b>M. Demouche</b> Application of design of experiments method and ANOVA to study the effect of process parameters on kerf width in plasma arc cutting of mild steel
10h30 – 10h15	<b>Ounissa Cherrad</b> Effect of thickness on the physical properties of evaporated Permalloy/GaAs(100) thin films
10h45 – 11h00	<b>Brahimi Abdelkhalek</b> Elaboration of Kaolin-Bound Porous SiC-Al <sub>2</sub> O <sub>3</sub> Composites
11h00 – 11h15	<b>Abdelkader Tamrabet</b> Effect of porosity on the mechanical buckling of functionally graded ceramic and metal sandwich plate containing a metallic foam core using high quasi-3d theory
11h15 – 12h00	Poster Session 3 & Coffee break <b>D. Benmahdi &amp; Kh. Ariane</b>
12h00 – 13h00	Closing ceremony
13h00 – 14h00	<b>Lunch</b>

# POSTER PRESENTATIONS

## Session1

**Monday 6 / 11 / 2023**

**11h00-11h30**

Author	Title
A. BOUZIANE	Conception of vibrating table to isolate copper from plastic
SMAHAT Amine	Harmonic structural analysis of Satellite Separation Mechanism
Okba Abid CHAREF	Enhancement of Vibration Attenuation in Damped Mechanical Systems using a Novel Non-Traditional Tuned Mass Damper with Negative Stiffness
F. MATOUK	Dynamic characterization of a composite material Glass/Epoxy
AOUFI Djalila	Effect of Plasticizer Content on the Properties of Biodegradable coating based on Starch/ Microcrystalline Cellulose Blend
Lahcene FELLAH	Effect of barium doping on the properties of NiO thin films
BOUCHARREB Samir	PROTHESES PAR FABRICATION ADDITIVE (IMPRESSION 3D)
CHADI Kamel	The effect of the Geometry and Material Type of Heat Sink on the Cooling of the Electronic Chip
CHADI Kamel	Impact of the Diameter Dimension of Multi-Channel Cooler on the Flow and Temperature Distribution
Leila LAMIRI	Effect of printing direction on 3D printed 3 DM ABS black reins specimens by Stereolithography SLA
FOURAR Issam	A numerical analysis of the mixing effect caused by internal helical fins inside an additively manufactured tube
FOURAR Issam	Effect of pores geometry on the heat transfer for longitudinal pores.
KATIB Hamlaoui	Study the effect of 3D printing parameters on the cross-linking rate of stereolithography.
BOUHANK Antar	Reduce Porosity in CMTed Aluminium Parts (Walls and Massive Parts)
BENCID Abdeslam	Effect of the Free Quenching Residual Stresses on the Thermophysical and Morphological Properties of Acrylonitrile-Butadiene-Styrene (ABS).
CHADI kamel	The Effect of Micro-channels Geometry on the Fluid Flow Characteristics
KAHLOUCHE Abdesalem	Caractérisation microstructurale et mécanique d'une couronne élaborée par fabrication additive
Ammar HABOUSSI	Evaluation of the Effect of Infill Patterns and Orientations on Mechanical Properties of 3D-printed samples

TALANTIKITE Massil	SIMULATION AND STUDY OF STRUCTURE AND HARDNESS OF STEEL SHEET AFTER ECAP
ZIANI.B	Modeling the path of the cutting tool for the 5-axis CNC machine
Abderrazak KEDADRIA	Topology Optimization of Customized Fixation Plate for Treating Middle One-Third Clavicle Fracture
Houari AOUED	Low Cost Inertial Measurement Unit, Application to: Tilt-Ducted-Fan Unmanned Aerial Vehicle
DJILI Abderrahmane	Global and Local Strain Evaluation in Tensile Test of AL2017-T4 Friction Stir Welded Joint Using Digital Image Correlation
Khouloud BAALI	Effect of varying submerged arc welding speeds on the metallurgical structure of steel for LPG cylinder manufacture
BELAID Hichem	Bending analysis of sandwich plates with different face sheet materials and functionally graded
H. BALIT	Influence of fibers on the thermal conductivity of the composite materials
Zeyneb CHERMAT	Effet de l'oxyde de fer sur l'élaboration d'une céramique chamotte carbone
Soufyane AOUNALLAH	Study of friction and wear of polystyrene crystal using Taguchi technique
Soufyane AOUNALLAH	Tribology of polystyrene sliding against steel
Abdelhakim DJALAB	Effet des contaminants du sable sur l'usure des contacts élastohydrodynamiques
KESKES Boualem	Quasi-static indentation and low-velocity impact response of an aluminium honeycomb sandwich structure
KESKES Boualem	Experimental investigation of flexural static and fatigue behavior of Nomex Honeycomb Sandwich Panels and modelling
Malika Saidi	Fabrication et caractérisation de composites flexibles à matrice silicone renforcées par des nanoparticules céramiques KNN
Abla GUECHI	Structural and mechanical properties of the ternary silicide $Gd_2Re_3Si_5$
Abla GUECHI	Etude numérique de cellules solaires à double absorbeur à base de tellure de cadmium (CdTe) et de disiliciure de fer (FeSi <sub>2</sub> )
Aissa BOUDILMI	Determination of the relation between the pressures, young's modulus and poisson's ratio from continuous conical indentation testing
Abdelhafid RAHMANE	effect of the location added mass on natural vibration of laminate composite structure during measurement
KHELLAF IKRAM	Recycled polystyrene used as a binder for optical glass finishing pellets

## Session 2

**Monday 06 / 11 / 2023**  
**16h45-17h30**

Author	Title
Imane RADJA	Spray-Coated assisted synthesise of Cu: SnS <sub>2</sub> thin films for antibacterial activities and photocatalytic properties
TOUNSI Assia	Elaboration, Design, characterization and Mechanisms of PANI-MnO <sub>2</sub>
D. EMBAREK	Influence of quenching temperature on the characteristics of a high strength material: 42CrMo4
Djamel DJEGHADER	Mechanical behavior under static, dynamic and cyclic loading test of jute reinforced polyester composite material
A. BOUKELLOUD	Statistical modelling of the fracture resistance of brittle materials: case of concrete
A. BEKHOUCHE	Effect of solution treatment on the martensitic transformation in NiMnSn Heusler alloy
A. BOUZIANE	Improvement of cementitious materials by using artificial aggregates
C. DJIDJELI	Elaboration and characterization of ZnO and AZO thin films by Sol-Gel method, the effect of incorporating Ag nanoparticles
S. ATTAF	Synthesis and characterization of Y <sub>1-x</sub> CaxBa <sub>2</sub> Cu <sub>3</sub> O <sub>y</sub> superconductor ceramics
A. MANGOUCI	Effect of Temperature and Humidity on the Mechanical Behavior of a Cotton Yarn
LACHACHE Rafika	Strength and Mechanical Behavior of Fiber Reinforced Clayey Soil: Experimental Study
DERGHOUM Romayssa	Tribological and Morphological properties of films deposit on metallic prostheses
Ikram KADRI	Effect of variation in stiffener shape on panel behavior under dynamic loading
N. MEZIANE	Simulation of vehicle behavior when passing an obstacle. Optimization of the suspension
TRADKHODJA Boutheina	Study on Vibration Analysis of Hybrid Laminated Bio-Composites
Mohammed Amine ZAFRANE	Acoustic Environment Analysis for Launch Vehicles and Satellite Impacts
Mohamed-Said CHEBBAH	Numerical modelling of the preheating temperature on cast IN-738 Ni Superalloy TIG welding
ATEF CHIBANI	A numerical analysis of the melting process of Phase change material-

	metal foam-based latent thermal energy storage.
H. BALIT	Influence of fibers on the thermal conductivity of the composite materials
DJENDARA Abdelhakim Amine	Comparison of the two Fluid Ostwald With Newtonian Fluid Effect in Hydrodynamic Lubrication Slid Bearing Film
Keltoum MOKRANI	Optimisation des paramètres influençant la qualité d'un produit en emboutissage de tôles
ATOUI Anfel	Caractérisation chimiques, géométriques et mécaniques des aciers destinés à la mise en forme par déformation plastique
C. DJIDJELI	Elaboration and characterization of ZnO and AZO thin films by Sol-Gel method, the effect of incorporating Ag nanoparticles.
Fayssal BOUFELGHA	Development of ZnO nanoparticles for polymer reinforcement
Leila BECHANE	Numerical optimization of (FTO/ZnO/Cs <sub>2</sub> AgBiBr <sub>6</sub> /P3HT/MO) perovskite solar cell
ZELLAGUI Rahima	Characterization of fiber of palm for reinforced polymer
MOHAMMED AMINE BELYAMNA	the Effect Of Welding Current And Speed On The Thermal And Residual Stress Distributions Of A 100% Austenitic Pipes Butt Weld
Abdelhalim ALLAOUI	Numerical Simulation of Fatigue Crack Propagation In 304L Stainless Steel
Chouaib ZEGHIDA	Intergranular Stress Corrosion Cracking Mitigation Using Mechanical Stress Improvement Process
Ismail GHEMRAS	Exalted dual-scale surface roughening in laser ablated aluminum capped with a transparent thin fim: Wetting and anti-icing behavior
SALIMA ABERKANE	Micromechanical behavior study of delta phase of the different morphologies of 316L alloy elaborated by WAAM
S. FEDALA	NOUVELLE APPROCHE D'ESTIMATION DE LA DURÉE DE VIE RÉSIDUELLE DES ROULEMENTS
S. FEDALA	.CONTRIBUTION AU DIAGNOSTIC INTELLIGENT DES DÉFAUTS DES ARBRES TOURNANTS



## Session3

**Tuesday 7 / 11 / 2023**

**11h15-12h00**

Author	Title
BECHANE Kawther	Electron-impact ionization of Argon 3p
Asma ABCHI	Spreading coefficient effect of thin films on the optical glass
GAIDI Fayçal	Les problèmes liés à l'exploitation des circuits de refroidissement de la Raffinerie de condensât RA2K-SONATRACH- SKIKDA
F.Z. MESSAGIER	Effect of graphene oxide nanosheets on the microstructure and morphology of the electrodeposited Ni-Co coatings
Imene ABDEDAIM	Effet de la cémentation sur le retour élastique dans l'essai d'étirage pliage en U
BELKADI Noufel	A new algorithm to optimize the effect of manufacturing errors on the kinematic and dynamic performances of a planar mechanism
HOSNA Abdenour	PSO-JAYA hybrid algorithm to optimize the design of a constrained mixed variable speed reducer
KOUACHI Mohamed	Simulation of temperature distribution during the butt-joint friction stir welding of stainless steel 304L
Tallal HAKMI	Mathematical modeling of surface roughness in polyoxymethylene (POM-C) turning
GASMI Khalid	An Enhanced African vulture's optimization algorithm for mechanical design problems
Dalila BENMAHDI	Détection Automatique de Défauts Mécaniques par Méta-Heuristiques
Ikram DAKHOUCHE	Study of the effectiveness with mechanical and optical profilometer of organic inhibitors against corrosion wear in HCl acid of XC48 steel's surface
Sofiane BLILITA	Electronic properties of MAX phase materials (Ti <sub>2</sub> AlC and Ti <sub>2</sub> AlB)
KRIM Samah	Characterization of wear resistance and adhesion of Ni-Al surface alloy produced by electrodeposition on aluminum alloy
BOUCHELOUCHE Fatima	Comportement mécanique d'une soudure par friction malaxage avant et après un traitement de vieillissement post-soudage
Kahina TAIEB	Parametric Study of the polishing process of ceramic scintillator used as radiation detector in Positron emission tomography
ARIANE Khalissa	Kinetic study of transparent fluormica glass-ceramic
YOUNES Leyla	Effet du temps de traitement sur quelques paramètres de l'échange ionique d'un verre silico-sodo calcique

MOUNIR Hassena	Study of technological parameters of polishing animated by a vibratory movement
Badra BOUCHARB	Elaboration and Characterization of Nanocomposites with PVC Matrix Reinforced by Nanoclays: Case of Montmorillonites
Samira FOUFI	Elaboration and characterization of perovskite oxide for photocatalyse application
Imene ABID	Elaboration et Characterization des couches minces d'Oxyde de Cuivre Préparées par Electrodeposition
Samira KEROUANI	Efficacité des stéarates de Cobalt dans l'amélioration de l'oxo-biodégradation des films de polyéthylène
S. KHELFI	Optimization of the aluminum dross washing for subsequent use in the synthesis of the spinel (MgAl <sub>2</sub> O <sub>4</sub> )
Abdelaziz GAHMOUSSE	Elaboration Processes of Fe <sub>2</sub> O <sub>3</sub> -Aluminosilicate Glass for Energy-Efficient Coatings
Nada BOUMAZZA	NiP Thin Films Synthesis With Desired Properties Via Electrodeposition
Ahlem MELLOUL	Investigation of magnetic and structural properties of CoxFe100-x thin films thermally evaporated onto amorphous silicon and Si(111) substrates
RIZI Hadje	Évaluation de l'effet pouzzolanique à l'aide d'une méthode basé sur la conductivité électrique
Wissem BOUGHOUICHE	Ni-W Thin Films: Elaboration and Characterization
Soumia Hamdani	Nano-indentation of bcc Vanadium: Atomistic simulation of plastic deformation
H. LAOUAMRI	Investigation on solid particle erosion behavior of jute fiber reinforced polyester composite
ARIANE khalissa	Damage behaviour of polyurethane foam-cored sandwich panel subjected to localized indentation
Mahdi Zakaria BELAÏB	Etude du comportement mécanique en compression des matériaux cellulaire en fibres de verre
Abderrahmane ABDESSELAM	Influence of elevated temperatures on the bond between CFRP and concrete
Ahcene OUBOUZID	Validation of a mathematical model for fatigue-induced damage in composite sandwich structures
Fahima ARAB	Investigation of new surface acoustic wave modes in IDTs/ZnO/Al <sub>2</sub> O <sub>3</sub> micromechanical pillar resonators
BECHANE Kawther	Electron-impact ionization of Argon 3p
Belkadi Noufel	A new algorithm to optimize the effect of manufacturing errors on the kinematic and dynamic performances of a planar mechanism
BELAÏB Mahdi Zakaria	Optimisation de la conception des multiplicateurs de vitesse des éoliennes

Zeyneb CHERMAT	Effet de l'oxyde de fer sur l'élaboration d'une céramique chamotte carbone
YOUNES Leyla,	Effet du temps de traitement sur quelques paramètres de l'échange ionique d'un verre silico-sodo calcique
BELAIB Mahdi Zakaria	Etude du comportement mécanique en compression des matériaux cellulaire en fibres de verre
KHIRANI Dalel	Investigation of progression failure of sandwich structure loading in monotonic 3-points bending test using acoustic emission
KHIRANI Dalel	Polyurethane foam sandwich structures collapse modes under three-point bending
MOUHOUBI. S	Investigation of local plant fibers "Diss" in the development of plaster matrix composite
BALI.T	Optimization of a copper-coat composite coating
CHOUITER Adel	Conception et réalisation d'un dispositif de cisaillement pour les panneaux sandwich
CHOUITER Adel	Optimisation du choix des outils de coupe pour l'usinage des poches quadrilatères en 2D1/2
Ahcene OUBOUZID	Numerical study with FEA of honeycomb cellular materials subjected to buckling
El hadj OUKADI	Étude du retour élastique des panneaux sandwich métal-polyuréthane
BARBERIS Marwa	Determination of the Mechanical Properties of Thermal Sprayed NiCrAlY Coatings using Experimental and Numerical Simulations
Wahiba SLIMANI	Study of efficiency of the heterogeneous cell CdTe/ CdS/ SnS
LAMECHE Norelhoud	Synthèse de couches minces d'oxyde de cuivre par sol gel
Yasmine NASRI	L'étude de l'effet de la forme et du taux de remplissage sur les propriétés mécaniques des pièces réalisées avec l'impression 3D
Fatiha KERAGHEL	Characterization of enameled steel sheets
MERTANI Boubekeur Mohammed Bilel	Comportement mécanique des structures en nid d'abeille soumises à la compression rapide
M.L. BELLA	Effect of the addition of aluminum hydroxide Al (oh) 3 on the sintering of djebel Debagh kaolin
MERTANI Boubekeur Mohammed Bilel	Etude du comportement mécanique d'un composite sandwich en mousse soumis à l'impact dynamique
HAKIMI Nesrine	Étude des caractéristiques mécaniques du polymère cellulose dans l'alfa et le coton
LOUCIF Maroua	Simulation of Hetero-junction ZnO/NiO by "SCAPS 1D" Calculation
Lamine TABERKANI	Structural, magnetic and electrical properties of thermally evaporated NixFe1-x thin films

Lamine TABERKANI	Investigations of the structural, magnetic and electrical properties of thermally evaporated $\text{Ni}_x\text{Fe}_{1-x}$ thin films
Zegadi. A	improvement of surface state of a transparent $\text{MgAl}_2\text{O}_4$ spinel by deposition of a metal oxide layer
Zegadi.A	Mechanical behavior of 3D printed bamboo-inspired cellular structures
Fatiha KERAGHEL	Etudes des fissures dans les tôles embouties fabriquées par l'entreprise nationales SONARIC.