



2nd International Conference on Advanced Materials (CIMA2.0 2023)

03-05 November 2023, Sousse– Tunisia

Scientific Program

Friday 03/11/2023

8h30 -10h30: Registration

10h30-11h Opening ceremony of CIMA2.0 2023

11h- 11h30 Coffee-break

11h30-12h10 CP1 : Pr. Anne LERICHE, CERAMATHS-DMP Université Polytechnique Hauts-de-France. Secrétaire Général de la Société Européenne de la Céramique

Titre : Diverses techniques de fabrication de biocéramiques macroporeuses et l'ajout de propriétés antibactériennes.

12h10-12h50 Oral communications: 1st session

	Room A	Room B	Room C
12:10- 12:30	O1A	O1B	O1C
12:30 - 12:50	O2A	O2B	O2C

13h – 14h30 Lunch

14h30-15h30 CP2: Pr. Zouhair FAKHFAKH, Retraité de la Faculté des Sciences de Sfax, Université de Sfax, Tunisie.

Titre : La microscopie électronique : une technique de caractérisation en pleine évolution.

15h30-16h Coffee-break and poster session I (P1 to P9)

16h-16h10 Pr. Basma SAMET, ENIS, Université de Sfax. Présidente de l'Association Tunisienne des Céramiques.



Titre : Présentation de l'Association Tunisienne des Céramiques.

16h10-16h30 Pr. Anne LERICHE, CERAMATHS-DMP Université Polytechnique Hauts-de-France.

Secrétaire Général de la Société Européenne de la Céramique

Titre : Présentation de la Société Européenne de la Céramique.

16h30-17h00 Monsieur Mohamed MEDHAFFAR et Dr. Yasmine FOURATI : Société VAL BIO DECHETS COMPOSITE (VBDC)

Titre : Présentation de la société VBDC.

17h00-19h00 Oral communications : 2nd session

	<u>Room A</u>	<u>Room B</u>	<u>Room C</u>
16:50- 17:10	O3A	O3B	O3C
17:10 - 17:30	O4A	O4B	O4C
17:30- 17:50	O5A	O5B	O5C
17:50 - 18:10	O6A	O6B	O6C
18:10– 18:30	O7A	O7B	O7C
18:30 – 18:50	O8A	O8B	O8C

19h Dinner

Saturday 04-11-2023

09h00 – 9h30 Registration

09h30 – 10h30 CP3: Pr. Lionel FLANDIN, Université Savoie Mont Blanc, France.

Title: Ultra low percolation threshold: when the nanoscale effects step in.

10:30 - 11:00- Coffee-break and poster session II (P10 to P19)

Oral communications: 3rd Session

	<u>Room A</u>	<u>Room B</u>	<u>Room C</u>
11:00- 11:20	O9A	O9B	O9C
11:20 - 11:40	O10A	O10B	O10C
11:40 - 12:00	O11A	O11B	O11C
12:00 – 12:20	O12A	O12B	O12C
12:20– 12:40	O13A	O13B	O13C

13h- 14h30 Lunch



14h30-15h20 CP4 : Pr. Youssef EL HAFIANE, Université de Limoges, France.

Titre : Contribution au développement d'Eco-ciments - ciments bas carbone et préservation des ressources naturelles.

15h20–16h Coffee-break and session poster III (P20 to P30)

16h-17h20 Session 4 : Oral communications

	<u>Room A</u>	<u>Room B</u>
16:00- 16:20	O14A	O14B
16:20 - 16:40	O15A	O15B
16:40 - 15:00	O16A	O16B
17:00 – 17:20	O17A	O17B

17h20-19h00 : Visit to the city of Sousse

19h Dinner

Sunday 05/11/2021

09h00 -09h40 : CP5 : Pr. Mohamed BEN HMIDA, Faculté de Médecine de Sfax, Tunisie.

Title-: New measures to minimize water consumption: eco-materials for dialysis therapy.

09h40 -10h00: Presentation of industrial partners

10h00 -11h20: Oral communications:

	<u>Room A</u>
10:00- 10:20	O18A
10:20 - 10:40	O19A
10:40 - 11:00	O20A
11:00-11:20	O21A
11 :20-11 :40	O22A

11h – 11h30 Coffee Break & Visit to the stands

11h30- 12h Closing ceremony



Oral Communications



Program of oral communications

Friday November 03, 2023

Morning: 1st session

Room A Chairman: Anne LERICHE

O1-A : Préparation et caractérisations d'un ciment osseux composite à base de carbonate de calcium et de HEMA utilisé pour la régénération du tissu osseux

Achouak Ghazel, Olivier Carpentier, Francine Monchau

O2-A: Structural, thermal and mechanical properties of PLA/ β -TCP biocomposites for 3D printing application

Sondes Ftiti, Awatef Guidara, Sandra Cifuentes, Hassib Tounsi

Room B Chairman: Pr. Lionel FLANDIN

O1-B: Effect of sol-gel derived TiO₂-SiO₂ binary nanoparticles on thermomechanical property of polymer matrix composite

Ayman ZAHROUNI, Rached SALHI

O2-B: Development of disposable graphene-based biosensor for the detection of Bisphenol A (BPA)

Imen Ben Chabchoubi, Najet Belkhamssa, João P da Costa, Mohamed Ksibi, Teresa Rocha-Santos, Olfa Hentati

Room C Chairman: Pr. Youssef EL HAFIANE

O1-C: Development of new materials and composites for environmental applications

Pr. Achraf Ghorbel

O2-C: Lignocellulosic Agricultural Waste: A Sustainable Solution for Environmental Conservation

Rim Ben Arfi, Achraf Ghorbal

Friday November 03, 2023

Afternoon 2nd session

Room A Chairman: Foued BENAYED

O3-A: The influence of MO incorporations on the structural studies and calorimetric dissolution of $\text{Li}_2\text{O-MO-P}_2\text{O}_5$ ($\text{M} \equiv \text{Zn}$ or Mn) phosphate glasses

Refka Oueslati-Omrani, Feriel Bendana, Ahmed Hichem Hamzaoui, Monia Hichri

O4-A: The various applications of apatite materials in the environment, energy, and medicine

Mustapha Hidouri

O5-A : Elaboration de biocéramiques d'hydroxyfluorapatites dopées au magnésium et au potassium

Zohra Sghaier, Mustapha Hidouri

O6-A: Sintering and Ionic Conductivity of Strontium Rare Earth Oxyapatites

Khouloud Kthiri, Mustapha Hidouri

O7-A: Biological properties of biomaterial based on the tricalcium phosphate and the calcium silicate

Safa Ben Rjeb, Siwar Sakka, Foued Ben Ayed

O8-A : Extraction des molécules bioactives de la spiruline platensis

Basma Adouani, Ikram Khemiri, Amadou Dicko, Mossadok Ben-Attia

Room B Chairman: Pr. Rached SALHI

O3- B: Magnetic phase separation in holmium doped $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ nanosized manganites

A. Krichene, S. Dhieb, N. Chniba Boudjada, W. Boujelben

O4-B: Large signal frequency dispersion of AlGaN/GaN high electron mobility transistors

Hana Mosbah, Malek Gassoumi, Mohamed Ali Zaidi

O5-B: Synthesis and Studies of Stannite $\text{Cu}_2\text{CoSnS}_4$ powder as ideal photocatalyst

H. Hammami, M. Ben Rabeh and M. Kanzari

O6-B : Etude structurale, optique et de l'activité catalytique de LaFeO_3 dopée par le Pb et le Mg pour deux températures de recuit

Jihen BenHmida, Khouloud Guettiti, Atef Dridi, Samir Azizi

O7-B: Electronic and thermoelectric properties of ZnO/Cu₂O heterostructures: First principles calculations

Boubaker Agoubi, Mabrouk Zemzemi

O8-B: High dielectric permittivity response in La_xCa_yCu_zO₈ ceramics

Rania Jabri, Mouldi Zouaoui

Room C Chairman: Pr. Rym DHOUIB-SAHNOUN

O3-C: Novel Lignocellulosic Biomaterial Beads for Simultaneous Adsorption of Methylene Blue and Congo Red Dyes

Hana Boubaker, Rim Ben Arfi, Karine Mougin, Achraf Ghorbal

O4-C: Elaboration and Characterization of Eco-friendly Polymeric Composites for Oil and Organic Solvent Absorption and Separation

Khawla Guiza, Rim Ben Arfi, Karine Mougin, Achraf Ghorbal

O5-C: Optimizing a Three-Stage Process for Hydrogen and Methane Production

Mouna Yahya, Samir Ismaili, Achraf Ghorbal

O6-C: effective removal of diclofenac from water using clay minerals

Fatma Mansouri, Nicolas Roche, Mohamed Ksibi

O7-C : Préparation et caractérisation de Charbon Actif à partir de marc de café et son application dans l'adsorption des colorants

Wiem Hamza, Nesrine Dammak, Mourad Benzina

O8-C: Influence of glass, plastic and ceramic packaging on olive oil quality during its storage

Fatma Chtourou, Nabila Dammak, Mohamed Ayedi, Mariem Gharselloui, Kamel Gargouri

Saturday November 04, 2023

Morning: 3rd session

Room A: Chairman: Pr. Rim TAKTAK

O9-A: Characterization of peloids prepared with Tunisian green clays and medicinal mineral waters

Thouraya Barhouni, Imene Bekri, Ezzeddine Srasra

O10-A : Effet de processus de recyclage sur les propriétés mécaniques et structurales d'un composite biosourcé

Manel Haddar, Sana Koubaa, Nader Haddar

O11-A : Valorisation des coques de pistache

Y. Chelbi, F. Kallel, N. Haddar

O12-A: A New methodology for investigating the weld joint microstructure and micro-hardness of the austenitic stainless steel clad plate made by SMAW/GTAW multi-pass welding process: Part I - Substrate case study

Rami Ghorbel, Dorra Abid, Ahmed Ktari, Nader Haddar

O13-A: Corrosion resistance of sanicro-28 in concentrated phosphoric acid mixed with an oxidizing agent

Dorra Abid, Marwa ben chobba, Fatma Hached, Mongi Feki

Room B Chairman: Pr. Said LAASRI

O9-B: Synthesis, crystal structure study, thermal, Hirshfeld surface, optical and photoluminescence properties of new organic-inorganic hybrid material

Ahlem Dadi, Najla Mahbouli Rhouma, Alessia Bacchi, Paolo Pio Mazzeo, Kamel Khirouni, Rim Ben Arfi, Mohamed Loukil, Achraf Ghorbal

O10-B: The enhancement of ethanol gas sensors response based on SnO₂ nanoparticles prepared by modified sol-gel

J. Soli, J. Maamria, E. Elaloui, R. Souissi, B. Bouricha, N. Bouguila, Lassaad El Mir

O11-B: Structural and electrical properties of the Al/p-Cu₂ZnSnS₄ doped sodium thin film Schottky diode grown by two methods

M. Marzougui, M. Ben Rabeh, M. Kanzari

O12-B: Synthesis, Physico-Chemical Characterization, Optical and Photoluminescence Properties of a New Centrosymmetric Hybrid Material: bis (4-fluorobenzylammonium) tetrachloridozincate

Najla Mahbouli Rhouma, Ahlem Dadi, Francesco Mezzadri, Kamel Khirouni, Mohamed Loukil, Achraf Ghorbal

O13-B: The Impact of Recycling on the Mechanical Properties of PC/ABS/PMMA Mixtures

Rahma Ezzeddine, Karama Fehri, Basma Samet

Room C Chairmen: Pr. Achraf GHORBEL

O9-C: Assessment of the pozzolanic activity of dam sediments in the cement Industry as pozzolanic additional constituent of Portland-Composite cement

Mohamed Yassine Habibi, B. Samet, Youssef El Hafiane, Agnès Smith

O10-C Atmospheric-Pressure Synthesis of Na-LTA and Na-P1 zeolites

Youssef Fakhfakh, Hassib Tounsi

O11-C: A low-cost route to prepare Fe-doped FAU zeolite from Tunisian clay: characterization and application for Catalytic Oxidation of C₃H₆

Olfa Ouled Ltaief, Stéphane Siffert, Mourad Benzina

O12-C: Optimal Concentration and Mechanical-Thermal Behavior of Untreated Almond Shell/Epoxy Eco-Composite Plates

Rakia S'habou, Sofiene Helaili, Ali Ellouze

O13-C: Potential valorization of Bir M'Cherga dam sediment in burnt clay bricks production: physico-chemical and thermal characterization of raw materials

Essia Boukhili, Rakia S'habou, Ali Ellouze, Hassib Tounsi

Saturday November, 04 2023

Afternoon: 4th session

Room A Chairman: Pr. Rim BEN ARFI

O14-A: Design of new unsaturated polyester composites filled with natural gypsum to enhance thermal and mechanical properties

S. Attia-Essaies, N. Barhoumi, H. Ayachi, H. Bouraoui, E. Srasra

O15-A: Possibility of using marble powder waste combined with silica fume as cement substitution in ecological self-compacting concrete

S.M. Mansour, Y. Guernout, B. Rabehi

O16-A : Effet de la forme des grains de sable et de la forme de son ajout sur les caractéristiques de gonflement des argiles compactées

Dr. Bahia Louafi

O17-A: Effect of pozzolanic material on the durability of sewage pipe mortars

Taheni Kallel, Abderrazek Kallel, Basma Samet

Room B Chairman: Pr. Hazem BOUHAMED

O14-B: Study of the Structural, Optical, and Antiproliferative Properties of Complex Materials and Doped Nanoparticles

Ferid Ben Nasr, Sami Mnif, Hajer Guerhazi, Benoît Duponchel, Gérard Leroy, Sami Aifa, Samir Guerhazi

O15-B: Effects of alfa fibers and slag on rheological and mechanical properties of self-compacting mortar

Hamza Hasnaoui, Basma Samet, Ali Sdiri, Djamel Athmania

O16-B: Crystal Structure, Hirshfeld Surface Analysis, and Photodegradation Application of a Novel Hybrid Material Based on Bismuth

Ines Walha, Fatma Zouari

O17-B: Energy transfer in Ce³⁺, Yb³⁺ co-doped aluminosilicate glasses for photovoltaic application

A. Assadi, A. Herrmann

O18-B: Effects of alfa fibers and slag on rheological and mechanical properties of self-compacting mortar

Hamza Hasnaoui, Basma Samet, Ali Sdiri, Djamel Athmania

Sunday November, 05 2023

Morning: 5th session

Room A Chairman: Pr. Anas BOUGUECHA

O18-A: Flexible Lead-Free BCT+MWCNT/PDMS-Based Nanogenerator as Piezoelectric Energy Harvester

Dalel Missaoui, Ayda Bouhamed, Anouar Njeh

O19-A: Rapid detection of lead ions in HKUST-1@PANI modified electrochemical sensor

Jassem Wannassi, Houcine Barhoumi

O20-A: Fe-MOF: A High-Performance Electrochemical Sensor for Simultaneous Detection of Hydroquinone, Catechol, and Resorcinol

Sondes Guesmi, Viviana Bressi, Houcine Barhoumi, Giovanni Neri

O21-A: Optimization and mechanical study of a bioceramic closing wedge for Tibial and Femoral Osteotomy

Siwar Sakka, Basma Samet, Foued Ben Ayed

O22-A: Catalytic activity of Cu/ η -Al₂O₃ catalysts prepared from aluminum chips in the NH₃-SCO in presence of water vapor

Nawel Jraba, Gerard Delahay, HassibTounsi



Poster Communications

Friday November 03, 2023

Afternoon: 1st Poster Session

P1: Temperature Dependent Behavior of 3D Printed Biocomposites and Viscoelastic Interlayers

Firas Meddeb, Abderrahim ElMahi, Jean-Luc Rebiere, Hajer Daoud, Mohamed Amine Ben Souf, Mohamed Haddar

P2: Adsorption behavior of cinnamon essential oil on sodium and surfactant exchanged clays

Thouraya Barhoumi, Houda Saad, Rim Essid, Mondher Srasra, Ezzeddine Srasra, Olfa Tabben

P3: Osmoviscoelastic behavior of cyclically loaded cervical intervertebral disc

Faten Feki, Rym Taktak, Nader Haddar, Fahmi Zaïri

P4: Optimization of the preparation of tricalcium phosphate from dental plaster models using Box-Behnken design

Sondes Ftiti, Awatef Guidara, Cifuentes Sandra, Hassib Tounsi

P5: Elaboration and characterization of a polymer-clay nanocomposite

Amina Baccour-Neji, Rym Dhouib-Sahnoun

P6: Traitement catalytique des Eaux usées

Amira YACOUB, Zouhaier KSIBI

P7: Optimization of the renewable energy production: A study on anaerobic digestion of household waste

Siwar Sakka

P8: The impact of heat treatment and welding process on the mechanical properties of alloy 6061

Dorra Abid, Rami Ghorbel, Nader Haddar

P9: Removal of pollutants from wastewater using palm found composite adsorbent

Aymen Alobaidi, Juman Alsadoon, Hazem BOUHAMED

P10: Thermo-Electro-Mechanical Properties of Methyl Methacrylate-Based Nanocomposites

Hamdi Hentati, Mondher Wali

Saturday November 04, 2023

Morning: 2nd Poster Session

P11: Synthesis of Fe₃O₄ Nanoparticles with Different size through a Co-Precipitation Method

Yasmina Si Ahmed, Toufik Hadjersi, S. Bouanik, Amar Manseri

P12: Elaboration of SiO₂@ZnO:Er composite for optoelectronic application: effect of Er³⁺ doping amount

Abderraouf Jraba, Jihen Soli, Lassad El Mir, Elimame Elaloui

P13: Structural, optical and electrical characterization of Calcium and Magnesium-doped LaFeO₃ perovskite materials

Hafedh Hammami, Khouloud Guettiti, Atef Dridi, Samir Azizi

P14: Analysis of the Vacuum infusion moulding process: Numerical formulation

Housseem Cherif, Saouab Abdelghani, Khawla Essassi, Abdelkhalak El Hami, Anas Bouguecha, Mohamed Haddar

P15: Synthesis, Crystal structure, and physicochemical studies of [C₇H₈N₃]₆(BiBr₆)₂ · 3H₂O

Ines Walha, Fatma Zouari

P16: Photocatalytic application of TiO₂ quantum dots assembled on TiO₂ nanotubes

Rawand Rabah, Semy Ben Chaâbène, Zouhaier Ksibi

P17: Structural and physical properties of silver doped CuCrO₂ delafossite

F. Jlaiel, A.H. Hamzaoui

P18: Structural, electronic, optical and thermodynamic properties of Sr_xCa_{1-x}O, Ba_xSr_{1-x}O and Ba_xCa_{1-x}O alloys

Mohamed Amin Ghebouli

P19: Effect of the calcium silicate addition on the mechanical performance of the tricalcium phosphate bioceramic

Safa Ben Rjeb, Siwar Sakka, Foued Ben Ayed

P20: Solidification–stabilization of vanadium pentoxide contaminant using hydraulic binder

Mabrouk Eloussaief; Adnen Marzoug; Ali Tlili; Nejib Kallel, Mourad Benzina

Saturday November 04, 2023

Afternoon: 3rd Poster Session

P21: Study of the mechanical properties of PC/ABS/PMMA blends using a mixture design

Rahma Ezzeddine, Karama Fehri, Basma Samet

P22: Evaluation of Tunisian dam sediment-based zeolite Na-X for ammonium removal using a central composite design and response surface methodology

Leila Doudey, Basma Samet, Hossein Kazemian, Hassib Tounsi

P23: Structural investigation, dielectric, ferroelectric, and electrocaloric properties of lead-free $Ba_{(1-x)}Ca_xTi_{(1-x)}(Li_{1/3}Nb_{2/3})_xO_{3-\delta}$ ($x = 0.02$ and $x = 0.07$) ceramics

F. Lawar, J. Belhadi, C. Boudaya, M. El Marssi, H. Khemakhem, A. Lahmar

P24: Numerical study of the propagation of the Love waves in a piezoelectric and piezotronics thin film over an elastic half-space

Issam BEN SALAH, Houda BOUKHRIS, Anouar NJEH

P25: Novel reddish-orange emitting ultraphosphate $CaP_4O_{11}: Eu^{3+}$ phosphor: Synthesis and photoluminescence properties

Mouna DERBEL, Aïcha MBAREK

P26: Physicochemical Investigation of Nanostructured Sb_2S_3 Material by Glancing Angle Deposition (GLAD) Technique: Understanding the Structural and Chemical Properties

F. Chaffar Akkari, M. Kanzari

P27: Hole trap, leakage current and barrier inhomogeneity in $(Pt/Au)Al_{0.2}Ga_{0.8}N/GaN/Si$ heterostructures

Manel Charfeddine, M. Ali Zaidi, Ayoub Hadj Said

P28: Structure, microstructure and mechanical features of ceramic products of kaolin, sand and waste earthenware

Mabrouk Ben Hamden, Jamel Bouaziz

P29: Application of an iterative algorithm to reconstruct the three-dimensional distribution

Farid Takali, Cherif Othmani

P30: Synthesis and characterization of $\alpha-Al_2O_3$ as a high added value product in the recycling strategy for the recovery of aluminum chips

Nawel Jraba, Gerard Delahay, HassibTounsi

P31: Significant improvement of non-radiative lifetime and electronic diffusivity in annealed $GaNAsSb/GaSb$

S. Bouagila, S. Ilahi, F. Chouchene ³, N. Yacoubi