



**11th International Conference on Energy and City of the Future,
Les Mureaux, France, 21-22 November 2024**

EVF'2024 Program

VENUE

CHIMM

Centre Hospitalier Intercommunal Meulan les Mureaux,

**1 Rue Baptiste Marcet,
78130 Les Mureaux**

Thursday November 21, 2024

8h00 **Reception and welcome coffee on CHIMM site**

9h00 **Opening ceremony**

Words and speeches from Chairs and organizers

Dominique TURPIN (President SenergyLab)

François GARAY (Maire des Mureaux)

Ikram DARCHERIF (Directrice Générale ECAM-EPMI)

Mohamed EL GANAOU (Professeur Université de Lorraine)

Round table

Synergies entre les mondes académiques, institutionnels et industriels : partenariats et attentes des territoires

Synergies between the academic, institutional and industrial worlds: partnerships and expectations of territories

Participants : Marie-Gabrielle MERY, Dominique TURPIN, François GARAY, Ikram DARCHERIF, Mohammed EL GANAOU, Rafik ABSI

10h30 **Invited Plenary Conference**

Geoffrey LEVERMORE (Nobel price and EVF Series Godfather)

Emeritus Prof, University of Manchester, UK

Climate change and the urban heat island



Professor Geoff Levermore, Nobel price and EVF Series Godfather

Plenary Conferences

11h10

Kamil GRECKI

Founder at Archiverse.io, Poland

Digital twin and technology in AEC industry

Paper 37 : TH4 : Factories of the futur

11h50

Nidam ABDI

Territorial Challenges, Les Mesnuls, France

Bonnes pratiques mondiales en matière de transitions numériques et énergétiques des territoires

Paper 30 : TH1 - City and buildings of the future

12h30 – 14h00 : Lunch break and Posters

14h00 Special Session and Round Table

Energie Solaire photovoltaïque ; Autoconsommation collective

Photovoltaic Solar Energy; Collective self-consumption

Plenary Conferences

- Pierre-Olivier LOGERAIS ; Paper 41
Univ Paris Est Créteil, CERTES, IUT de Sénart-Fontainebleau, Lieusaint, France
Durabilité des centrales photovoltaïques en milieux désertiques : de la conception aux stratégies de maintenance
- Djaffar OULD ABDESLAM ;
Université de Haute Alsace, IUT de Mulhouse, Institut IRIMAS, Mulhouse, France
L'IA au service de la gestion de l'énergie. Le cas du projet INTERREG ASIMUTE : Autoconsommation Intelligente de l'Énergie

Round Table

Autoconsommation collective : cas de l'énergie solaire photovoltaïque en milieu urbain

Collective self-consumption: the case of photovoltaic solar energy in an urban environment

PART'Ener, PART'Extern & MASTERPIECE

Participants : Patrice AUCLAIR, Philippe GOUT, Marc FLEURY, Djaffar OULD ABDESLAM, Pierre-Olivier LOGERAIS, Marie-Gabrielle MERY, Rafik ABSI

Session 1A

15h30 Oral presentation ; Paper 43 ; TH1 - City and buildings of the future ;
Wendong LI, Mourad RAHIM, Mohammed EL GANAOU, Rachid BENNACER ;
Optimizing Building Envelope Performance through the Dynamic Integration of Phase
Change Materials
University of Lorraine & ENS Paris Saclay, France

15h50 Oral presentation ; Paper 38 ; TH1 - City and buildings of the future ;
Qiong YE ; Giao T.M. NGUYEN ; Rafik ABSI ; Béatrice LEDESERT & Ronan HEBERT ;
Numerical modeling of the thermal performance of a building envelope incorporating solid-
solid phase change material
CY Cergy Paris Université & ECAM-EPMI, France

16h10 Oral presentation ; Paper 11 ; TH1 - City and buildings of the future ;
Chuhan ZHAO, Souad MORSLI, Mohammed EL GANAOU ;
Enhancing Indoor Air Quality: A Comparative Study of Air Age and CO₂ Levels Across
Various Ventilation Scenarios
University of Lorraine, France

16h30 Oral presentation ; Paper 39 ; TH2 - Energy and management ;
Labouda BA, Fatma TANGOUR, Rafik ABSI ; Ikram EL ABBASSI ;
Analysis of Digital Twins Applications in Energy Efficiency: Systematic Review
ECAM-EPMI, France

16h50 Oral presentation ; Paper 36 ; TH2 - Energy and management ;
Bilal AMGHAR, Khelil SIDI IBRAHIM & Toufik AZIB ;
Smart Charging and V2G Solutions : Optimizing Energy Demand Management with Grid
Integration for Evs
ESTACA Lab, France

Session 1B

17h10 Oral presentation ; Paper 4 ; TH2 - Energy and management ;
Jérôme FILS ;
Energy production with fusion: comparison of electro-magnetic confinement and laser-driven
inertial compression methods
ECAM-EPMI, France

17h30 Oral presentation ; Paper 28 ; TH5 - Water management ;
Ahmedou MEMOUNE DAH , Hitoshi TANAKA , Abdoul DIA & Rafik ABSI ;
Quelles solutions pour la protection du littoral ouest Africain : cas de la ville de Nouakchott
Université de Nouakchott, Mauritanie; ECAM-EPMI France & Tohoku University, Japon

**17h50 Oral and Poster presentation ; Paper 5 ; TH9 - Professions of the future and
related training courses ;**
G DI PALO, M UZUNOVA, A VOTO, S HAMACI, R ABSI ;
A survey of Open Innovation ecosystems and practices within 6 countries for regional policy
recommendations
*ECAM-EPMI, France & Foundation IFEL Campania, Institute for Finance and Local
Economy of Campania Napoli, Italy*

18h10 Oral presentation ; Paper 10 ; Physics ;

Amira M'HADBI, Khalid CHTAIBI, Mohammed EL GANAOU, Haïkel BEN HAMED & Amenallah GUIZANI ;

Analysis of mixed convection in a square ventilated cavity containing a nonNewtonian fluid and a heat-generating square block

Lorraine University, IUT, LERMAB, Longwy, France ; University of Tunis El Manar, Tunis, Tunisia ; Cadi Ayyad University, Marrakesh, Morocco & Picardie Jules Verne University, Amiens, France

Session 2A

15h30 Oral presentation ; Paper 23 ; TH1 - City and buildings of the future ;

Atsou Fiefonou AKOUE, Prifin Bogardi MAYAYA NKOKOLO ;

Vers une Mobilité Urbaine Durable à Lomé : Innovations et Défis pour la Ville du Futur

15h50 Oral presentation ; Paper 16 ; TH1 - City and buildings of the future ;

Abderrahmane JOUHAR, Driss EL HACHMI, Raja MOUSSAOUI, Takarli MOKHFI, Fatima ALLOU ;

Acoustic wave assessment of compressed earth blocks in seismic zones : Application village Tirknit provinces Chichaoua Taroudant (Morocco)

16h10 Oral presentation ; Paper 1 ; TH2 - Energy and management ;

Ali KOUBAYSSI, Mohammad ARNAOUT, Mohammad ABOU CHAHINE, Rafik ABSI ;

Power Compensation of Shunt Capacitors for Hybrid Multi-Source Systems: Improving Voltage Stability and Reducing Losses

16h30 Oral presentation ; Paper 9 ; TH2 - Energy and management ;

M ESSAHRAOUI, R EL BOUAYADI, M EL GANAOU, A SAAD ;

The Impact of Increasing the Number of Undulations of Undulatory Shape Distributed Along the Concave Surface of Savonius Wind Turbine Blade inspired by The Flower of Life Concept

16h50 Oral presentation ; Paper 6 ; TH2 - Energy and management ;

Maïssa LAKEHAL AYAT, Abla CHAKER & Rafik ABSI ;

Validation of the numerical model of a concentrated photovoltaic-thermal hybrid collector using TRYSYS

Session 2B

17h10 Oral presentation ; Paper 14 ; TH2 - Energy and management ;

Hamza BENZZINE, Hicham LABRIM, Aouatif SAAD, Driss ZEJLI, Rachid EL

BOUAYADI

Optimization of Greenhouse Production : Energy Simulation and Strategic Planning for Off-Peak Market Periods

17h30 Oral presentation ; Paper 32 ; TH2 - Energy and management ;

Mohamed-Amine BABAY ; Mustapha ADAR ; Ahmed CHEBAK ; Mustapha MABROUKI
Design and Optimization of Hybrid PV-Hydrogen Systems for Efficient Energy Storage and Balancing

University of Sultan Moulay Slimane, Beni Mellal, Morocco

17h50 Oral presentation ; Paper 33 ; TH2 - Energy and management ;

Mustapha ADAR, Mohamed-Amine BABAY, Mustapha MABROUKI

Three PV systems production forecasting using deep learning and statistical techniques

University of Sultan Moulay Slimane, Beni Mellal, Morocco

18h10 Oral presentation ; Paper 13 ; TH2 - Energy and management ;

Abla EL HJAJBI, H. LABRIM, A. FADDOULI, B. HARTITI, D. ZEJLI, M. MALKI, R. ELBOUAYADI

A Computational investigation of a new hybrid system of a flat-plate solar collector with phase-change material and concentrator

Paper 3 ; Poster presentation TH9 - Professions of the future and related training courses ;

Raphaël SASPORTAS

Extraction of linearly independent rows and dependency coefficients in datasets

ECAM-EPMI, France

18h30 : Coffee and Posters

Friday November 22, 2024

- 8h30** **Reception and welcome coffee on CHIMM site**
- 9h00** **Special Session and Round Table:**
Architecture, urbanisme et ville de demain
Architecture, urban planning and the city of tomorrow
- Plenary Conference**
Maysoun SAWAAN
Architect and international expert in urban planning, Nouakchott, Mauritanie
Urban master plan development for cities in developing countries
- Round Table**
Participants : Marie-Gabrielle MERY, Maysoun SAWAAN,
Mohammed EL GANAOUI, Jean-Michel BRUCKER, Ali AL RAOUF
- 10h00** **Special Session and Round Table**
TH7 - E-Health
- Plenary Conferences**
- Yahya BARBARA ;
La santé en progression
 - Moncef BENKHERRAT, Carlos ALARIO-HOYOS, Doru CANTEMIR, Carlos DELGADO KLOOS, Adriana TOFANESCU, Rafik ABSI, Paper 27
EUCare4.0 Health 4.0 training to boost digital transformation of EU
- Round Table**
Focus : EUCare4.0
- Plenary Conferences**
- 11h30** Elias Fouad MAMI
Université de Tlemcen, Algérie
La maintenance industrielle au service de l'usine du futur
Paper 21 : TH4 - Factories of the futur
- 12h00** K. MATHEW
Accelirate Inc, India
Transforming Energy Systems with AI and Automation for the City of the Future
Paper 29 : TH1 - City and buildings of the future

12h30 à 14h00 : Lunch break and Posters

Session 3A

14h00 Oral presentation ; Paper 17 ; TH5 - Water management ;

Mohammed EL HABNOUNY, O Salma, Menchafou Youssef , Driss Zejli & Aouatif SAAD
Experience with desalination plants for irrigation in Morocco: example of Dakhla Public-Private Partnership projects

Ibn Tofail University, Kenitra, Maroc

14h20 Oral presentation ; Paper 31 ; TH5 - Water management ;

Mohammed KHATTAOUI, Said ZAMOUM, Demelash GOSHIME, Djillali HAMES, Chahinaz LOUCIF & Rafik ABSI ;

Evaluation des débits ruisselés à un exutoire d'un bassin versant à partir des données pluviométriques à l'aide du logiciel HEC-HMS

Mouloud Mammeri University. Tizi-Ouzou. Algeria, ECAM-EPMI, France & Arba Minch University, Ethiopie

14h40 Oral presentation ; Paper 34 ; TH5 - Water management;

Noureddine BENSAFI, Mourad LAZRI, Rafik ABSI, Karim LABADI, Soltane AMEUR ;
Combining Classifiers for Delineation of Raining Cloud over North Algeria and Mediterranean Sea

ECAM-EPMI, France & Université Mouloud Mammeri Tizi Ouzou, Tizi Ouzou, Algérie

15h00 Oral presentation ; Paper 40 ; TH5 - Water management ;

Sadjia HAMDAD, Mourad LAZRI, Karim LABADI, Rafik ABSI, Soltane AMEUR
Évaluation du phénomène sec/humide pour une gestion durable de l'eau à l'aide des chaînes de Markov

ECAM-EPMI, France & Université Mouloud Mammeri Tizi Ouzou, Tizi Ouzou, Algérie

15h20 Oral presentation : Paper 7 ; TH5 - Water management ;

Taki-Eddine ABBASSI, Abdelhakim SAHOUR, Moncef BENKHERRAT, Saddam BRAI, Islem BOUTIOUTA, Farouk BOUHAMREZ ;

Machine Learning-Based Soil Moisture Prediction Using Meteorological Data for Enhanced Irrigation Management

Abbes Laghrour University, Khenchela, Algeria ; ECAM-EPMI, France ; Badji Mokhtar-Annaba University, Algeria & 8 Mai 1945 – Guelma University, Guelma, Algeria

Session 3B

15h40 Oral presentation : Paper 2 ; TH5 - Water management ;

Amira YOUNBI, Amira AFRI, Taki-eddine YAHI, Ahmed HOUILIA, Hadj Ahmed ABBASSI, Moncef BENKHERRAT ;

Developing an Innovative Artificial Ecosystem in the Wetlands of El Rym Annaba (Northeast Algeria)

ECAM-EPMI, France & Environmental Research Center (CRE), Annaba, Algeria, Public Establishment of Health of proximity EPSP- Dréan, Algeria

16h00 Oral presentation ; Paper 24 ; TH7 - E-Health ;

Abdelhakim SAHOUR, Mohamed LAMRI, Farouk BOUMEHREZ, Abdelaali BEK-HOUCHE ;

Explainable AI for Diabetes Diagnosis

Abbes Laghrour University, Khenchela & 8 Mai 1945 – Guelma University, Guelma, Algeria

16h20 Oral presentation ; Paper 12 ; TH6 - Waste management ;

Khaoula EL MAJDOUB, Salah SOUABI, Safaa KHATTABI RIFI, Abdelaziz MADINZI

Traitement des eaux usées des huileries d'olive avec le pois chiche (*Cicer arietinum*) comme coagulant naturel

Faculté des Sciences et Techniques de Mohammedia, Maroc

16h40 Oral presentation ; Paper 42 ; ; TH2 - Energy and management ;

Yassine BOUDGHENE STAMBOULI, Samir HAMACI ;

Modélisation du temps de cycle (Évaluation de performances ?) d'un AS/RS en vue d'optimiser les coûts de fonctionnement, accent mis sur les coûts énergétiques

ECAM-EPMI & University Centre of Maghnia, Algeria

Session 4A

14h00 Oral presentation ; Paper 8 ;

Liqiang GONG, Hanguang FU, Rafik ABSI

Microstructure and properties of Cu-bearing hypereutectic high chromium cast iron

ECAM-EPMI & Beijing University of Technology, Chine

14h20 Oral presentation ; Paper 15 ;

Ibtissam EL AOUNI, Hicham LABRIM, Rachid EL BOUAYADI, Driss ZEJLI, Mohammed EL GANAOUI, Aouatif SAAD ;

Optimization of an Evaporation System: A Comparative Analysis of ADMM and Quadratic Programming

Ibn Tofail University, Kenitra, Maroc

14h40 Oral presentation ; Paper 18 ; Physics

Salwa BOUHAMIDI ALAOUI ; Hicham LABRIM, Ahmed AL SHAMI, Mohammed BENAÏSSA, Redouane MGHAÏOUINI, Rachid EL BOUAYADI

Structural, Electronic, Optical, and Thermoelectric Properties of $\text{FrSnI}_3\text{-xF}_x$ ($x=0, 1, 2, 3$) Perovskites Using the TB-mBJ Approach

Ibn Tofail University Kenitra & Mohammed V University Rabat, Maroc

15h00 Oral presentation ; Paper 19 ; TH2 - Energy and management ;

Mohammed Islam BOUTIOUTA ; Taki Eddine ABBASSI ; Aya SAKHRI ; Nourreddine DOGHMANE ;

Experimental Energy Consumption Analysis and Optimization of ESP32-Based Wireless Sensor Nodes for Forest Fire Monitoring in Mechrouha, Northeastern

Badji Mokhtar-Annaba University, Algérie

15h20 Oral presentation ; Paper 20 ; TH1 - City and buildings of the future

Feriel AOUISSI, Farouk BOUMEHREZ, Abdelhakim SAHOUR, Abdelali BEKHOUICHE, Fouzia MAAMRI, Hiba Ines BITAT ;

Smart Greenhouse Monitoring and Management Using a LoRa-Based IoT System

Abbes LAGHROUR University Khanchela, Algeria ; 8 Mai 1945 – Guelma University, Guelma, Algeria & ECAM-EPMI, France

Session 4B

15h40 Oral presentation ; Paper 22 ;

Ines ABDELAZIZ, Farouk BOUMEHREZ, Abdelhakim SAHOUR, Abdelali BEKHOUCHE, Fouzia MAAMRI, Hanane DJELLAB ;

Detection of wheat diseases with deep learning

Abbes Laghrour Khenchela University, Algeria ; Université 8 Mai 1945 Guelma, Algeria ; ECAM-EPMI, France & University of Echahid Larbi Tebessi, Tebessa Algeria

16h00 Oral presentation ; Paper 25 ;Physics

Yunjie LI, Jean-Michel NUNZI ;

An investigation of CO₂ laser pattern creation on Polydimethylsiloxane thin film surface in daytime passive radiative cooling

Queens University, Kingston, Canada

16h20 Oral presentation ; Paper 26 ; Physics

Monica AYACHIT, Jean-Michel NUNZI ;

Advancements in PMMA Nanoparticle Synthesis for Drug Delivery Applications

Queens University, Kingston, Canada

16h40 Oral presentation ; Paper 35 ;

Ali HAMROUN, LABADI Karim, LAZRI Mourad, Fethi OUALOUCHE ;

Simulation and performance evaluation of a stochastic discrete-event model of car sharing networks

ECAM-EPMI, France & Université Mouloud Mammeri Tizi Ouzou, Tizi Ouzou, Algérie

17h00 End of sessions and conference conclusion