



International Conference on

# Applied Mathematics in Economics

23-24 Oct 2024, Bejaia, Algeria

Conference Program



Algerian Ministry of Higher Education and Scientific  
Research

Research Centre in Applied Economics for Development

(CREAD)



Human Development & Social Economics Department

## Conference Program

# International Conference on Applied Mathematics in Economics



October 23<sup>rd</sup>, 24<sup>th</sup> 2024,



Bejaia, Algeria

partners



### Honorary chairpersons

- **Prof. A. ZAKANE. CREAD director**
- **Prof. M. TIDJET. CRLCA director**

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Conference co-chairperson	<b>F. FLICI.</b>
Scientific committee chairperson	<b>M. LASSASSI.</b>
Scientific committee co-chairperson	<b>A. LOUNACI.</b>
Organizing committee chairperson	<b>A. OULMANE.</b>
Organizing committee co-chairperson	<b>N. BOUSBA.</b>



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## Organizing Committee

**M. Lassassi, F. Rahmoune, A. Belhadi, K. Bellil, F. Flici, A. Lounaci, A. Oulmane, N. Bousba, L. Idres, S. Kendi, K. Merabtene, L. Meziani-Khima, N. Nait Mohand, M. Sadou, R. Sait, L. Sabbah, S. Touati, F. Djani, S. Madi, L. Djerroud, S. Amroun, N. Dairi.**

### ***Presentation***

This first edition of the International Conference on Applied Mathematics in Economics 2024 (AMiE'2024) intends to offer a scientific and convivial space for discussing the latest mathematical advancements that have played a decisive role in achieving significant gains in several key economic sectors. AMiE'2024 is willing to bridge the gap between the mathematical and the economic communities, thus creating essential connections between these interrelated domains. By bringing together researchers, decision-makers, and field practitioners, we can strengthen national and international collaborations, and foster the emergence of fruitful ones. Such collaborations are essential in addressing current economic challenges and contributing to sustainable economic development.

### ***Conference topics***

The conference topics include:

- Actuarial mathematics, social policies & social protection;
- Agriculture & agri-Food;
- Decision support;
- Employment;
- Energy;
- Hygiene, health & environment;
- Logistic & transportation problems.

### ***Conference location***

The activities of the AMiE'2024 conference take place at

the Centre for Research in  
Amazigh Language and Culture  
(CRLCA),  
RN°09, Aboudaou, Bejaia.



### ***Conference program***

The AMiE'2024 two days conference program includes

- Invited lectures;
- Key lectures;
- Oral presentations;
- Poster presentations;

As well as a socio-cultural event around the historical monuments and archaeological sites related to famous mathematicians who stayed in Bejaia, from the medieval period to the 19th century.

## INVITED SPEAKERS

### **Prof. Abdelhakim HAMMOUDI**

INRAE, France.



Abdelhakim HAMMOUDI is a Research Director at Université Paris-Saclay, INRAE, France. He holds a PhD in mathematical economics from the Ecole Nationale de Ponts et Chaussées (Paris). He joined INRAE in 2006 where he specialized in The Theory of Industrial Organization and the analysis of actors' strategies in domestic and international markets. His research at INRAE focuses mainly on the organization issue of the agro-food sectors, food security, and the interactions between public food regulations and private strategies in the agri-food markets. He has edited three books on game theory and strategic management and co-authored three books dealing with agro-food issues. He coordinated and participated in several European and international projects, conducted expert appraisals for European and international organizations, and supervised several PhDs thesis.

### **Prof. Saïd SOUAM**

University Paris Nanterre, France.

Saïd SOUAM is currently a professor of economics at the University Paris Nanterre. He is the Deputy-Director of EconomiX. He obtained his PhD in economic foundations of competition policy from Panthéon-Sorbonne University and CREST. He is specialized in industrial economics, applied game theory, competition policy, corporate governance, and development economics. He conducted several scientific projects on Voting in General Assemblies, Political Economy of Reforms, and Commitments Procedures in EU competition policy. He supervised several PhD theses in Algeria, France, and Tunisia.





**Prof. Farid FLICI**

CREAD, Algeria.

Farid FLICI is an Actuary with a Ph.D in Statistics. He works as a senior researcher at the Research Center in Applied Economics for Development (CREAD) in Algeria. His research activity focuses on studying the effects of demographic phenomena such as mortality & longevity, ageing, and morbidity on the financial sustainability of social security and pension systems. Farid is the Managing Director of the Human Development and Social Economics Department at CREAD, a member of the Population Studies Team, and the leader and founder of the Actuarial Demography Working Group. Besides, he is a member-expert at the national committee for population belonging to the Algerian health ministry and president of the social statistics commission of the National Council of Statistics.

**Prof. Samer KHERFI**

American University of Sharjah,  
United Arab Emirates.

Samer KHERFI is Head of Department and Associate Professor at the Department of Economics of the American University of Sharjah. He teaches Middle East economics, international macroeconomics, labor economics and econometrics. His current research focuses on education and labor

market outcomes in the Middle East and macro forecasting. He has served as an economic and statistical consultant to a number of national and international organizations. His research appears in books by Oxford University Press and in academic journals such as Journal of Economic Education, Quarterly Review of Economics and Finance, and Journal of Economic Studies.





**Prof. Djamil AISSANI**  
Bejaia University, Algeria.



Djamil Aissani is a mathematician and an Algerian man of culture. He began teaching in 1978 at the University of Constantine. He joined the University of Béjaia since its opening in 1983/1984. He was the first member of this institution to be promoted to the rank of Professor (March 1988), to the grade of Research Director (1993), and to the position of Dean of Faculty (at its creation in 1999 – Faculty of Sciences and Engineering Sciences). He is the president of the learned society Gehimab (History of Sciences and History of Ideas in Béjaia, the Maghreb, and the Mediterranean, <http://www.gehimab.org>), founded in December 1991. On June 29, 2024, he was appointed President of the Jury for the President of the Republic's Prize for Amazighity (HCA).

**Prof. Moundir LASSASSI**  
CREAD, Algeria.



Moundir LASSASSI is a Research Director at the Research Centre in Applied Economics for Development (CREAD), Algeria since 2006, division director of the Human Development and Social Sciences at CREAD from 2018 to 2020, Director of CREAD from 2020 to 2022 and Director at National Council for Scientific Research and Technologies (CNRST) since 2022. He obtained his Ph.D. in Economics in 2014 from Aix-Marseille School of Economics and his Ph.D in Applied Economics and Statistics in 2015 from the National School of Statistics and Applied Economics (ENSSEA - Algeria). He specializes in the analysis of labour markets in MENA region, with special expertise on youth and women's economic participation, informal economies, and child development. His research interests include labour economics, development economics and social economics.

## PRESENTATIONS' SCHEDULE

Wednesday, 23 <sup>rd</sup> of October, 2024	
8:30 - 9:00	<b>Registration</b>
	Opening ceremony
9:00 - 9:15	<ul style="list-style-type: none"> <li>▪ Dr. Lahna <b>IDRES</b>, Conference Chairperson</li> <li>▪ Prof. Mustapha <b>TIDJET</b>, director of CRLCA</li> <li>▪ Prof. Ahmad <b>ZAKANE</b>, director of CREAD</li> </ul>
	<b>Plenary Lecture 1</b>
	Session chairperson: Prof. M.S. <b>RADJEF</b>
9:15	Model of Product Differentiation in
9:55	Industrial Economics: Application and
	Finalized Research Perspectives
	<i>Prof. Abdelhakim <b>HAMMOUDI</b></i>
	<b>Auditorium</b>
9:55 - 10:10	<b>Coffee break</b>
	<b>Poster Session</b>
	A modified adaptive direction algorithm for solving linear fractional programs
	<i>Mohand <b>BENTOBACHE*</b>, Mohammed Amin <b>HAKMI</b> and Mohand Ouamer <b>BIBI</b></i>
10:10	Bias correction of kernel density function estimator at the finite points
10:25	<i>Hind <b>BOUREDJI*</b> and Abdallah <b>SAYAH</b></i>
	Kernel estimate of spectral density functions of sample covariance matrices with relaxed independence conditions
	<i>Zahira <b>KHETTAB</b></i>
	<b>Hall</b>

10:25 - 11:55

*Parallel Sessions*

**Session 1: Agriculture & Agri-food**

Session chairperson: Dr. K. BOUDEDJA

10:25

10:55

**Key-lecture:** Socio-Economic Implications and Potential Structural Adaptations of the Tunisian Agricultural Sector to Climate Change.

*Dr. Amine OULMANE*

10:55

11:15

Willingness to Pay for Agricultural Advisory Services: The Case of Citrus Growers in the Mitidja, Algeria

*Moundir LASSASSI\*, Amine OULMANE, karima BOUDEDJA and Amel BOUZID*

11:15

11:35

Dispersion des producteurs, stratégies des collecteurs de dattes et émergence de la qualité et les prix.

*Lamia MEZIANI\*, Abdelhakim HAMMOUDI et Mohammed Said RADJEF*

11:35

11:55

Réduction des pesticides et évolution des variables économiques et sanitaires : Une approche théorique.

*Nacim NAIT MOHAND\*, Mohammed Said RADJEF et Abdelhakim HAMMOUDI*

**Auditorium**

**Session 2: Actuarial Mathematics, Social Policies & Social Protection**

Session chairperson: Prof. M. **BOUALEM**

10:25 Assessing Poverty and Implications of  
10:45 Social Protection Measures in Algeria

*Yasmine DERRADJ\** and *Hanya KHERCHI  
MEDJDEN*

10:45 Regional Mortality Disparities in Algeria

11:05 *Amina BOUKHALFA and Farid FLICI\**

Estimation of Mortality Rates by Logit  
Regression Models

11:05 *Ahmed LAKEHAL\* and Farouk METIRI*

11:25 Lois Non Paramétriques de Survie et Leur  
11:45 Application dans les Assurances

*Ghania SAIDI*

**Room 1**

**Session 3: Applied Econometrics**

Session chairperson: Dr. S. **MEHIBEL**

10:25 Economic complexity, growth, and  
10:45 development. An empirical analysis at the  
macro level using Buffered Threshold  
Panel Data Model

*Fayçal HAMDI, Saïd SOUAM and Messaoud  
ZOUIKRI\**

10:45 Fluctuations économiques et politique  
11:05 monétaire dans une petite économie  
ouverte exportatrice de pétrole : Une  
modélisation DSGE

*Asma Ghania BENAMEUR\* and Rachid  
TOUMACHE*

**Room 2**

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11:05 L'apport des mathématiques à l'analyse  
11:25 de la croissance économique : Une  
illustration par l'introduction des IDE  
dans le modèle de synthèse (Classico-  
Keynésien)

*Brahim GANA*

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11:25 Soubassement mathématique de la  
11:45 modélisation en économie : Adéquation  
des MEGC

*Naima MENNAD\* and M'hamed ZIAD*

12:00

*Lunch Break*

13:30

**Plenary Lecture 2**

Session chairperson: Dr. A. LOUNACI

13:30 Fighting anti-competitive practices: An  
14:10 economic perspective

*Prof. Saïd SOUAM*

**Auditorium**

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**Plenary Lecture 3**

Session chairperson: Prof. K. OUKACI

14:10 Is Anything Better than Nothing? Data  
14:50 Quality under Compulsory Survey  
Participation

*Prof. Samer KHERFI*

**Auditorium**

14:50

*Coffee break*

15:05

<i>Poster Session</i>		
	The Topp Leone Flexible Weibull Distribution: An extension of the Flexible Weibull Distribution <i>Khaoula AIDI</i>	
	A Novel Architecture for Stacking Ensemble Method in Machine Learning <i>Safia ABDOUCHE* and Farid GASMI</i>	
15:05	Method of Centers for Solving	
15:20	Constrained Multiobjective Optimization Problems <i>Zoubir RAMDANI*, Smail ADDOUNE and Boualem BRAHMI</i>	Hall
	Impact de l'Optimisation du Placement des Fonctions Réseaux sur l'Économie et la Qualité de Service des Opérateurs de Télécommunications <i>Imad Eddine SAID*, Lamri SAYAD and Djamil AISSANI</i>	
15:20 16:50		<i>Parallel Sessions</i>
	<i>Session 1: Decision Support</i> Session chairperson: Prof. F. RAHMOUNE	
15:20	<i>Key-lecture:</i> L'apport du modèle translog dans l'estimation des dépenses de services d'une entreprise : cas entreprise algérienne des eaux	Auditorium
15:50	<i>Dr. Kafía BERRAH</i>	

15:50 16:10	Coopétition Vs Compétition dans un laboratoire de recherche : Approche par les Jeux de Formation de Coalition <i>Razika SAIT*</i> , <i>Abdelhakim HAMMOUDI</i> and <i>Mohammed Saïd RADJEF</i>	
16:10 16:30	Concurrence et fraude aux normes environnementales : Cas de Dieselgate - Une approche de jeu répété <i>Walid AZIEZ*</i> , <i>Mohammed Saïd RADJEF</i> and <i>Abdelhakim HAMMOUDI</i>	
16:30 16:50	Vers une évaluation rationnelle de la performance des Ressources Humaines dans l'entreprise Algérienne par la méthode Fuzzy Analytic Hierarchy Process <i>Abdallah BSAISSA</i> and <i>Dalila ASSOUL-BENZIANE*</i>	
<b>Session 2: Environment</b> Session chairperson: Prof. K. ADEL		
15:20 15:40	Assessing the Suitability of Average-Conditioned Statistical Methods for Measuring Environmental Degradation in Algeria <i>Aymen Salah BENNIHI*</i> and <i>Nadjat KACI</i>	
15:40 16:00	Panel data analysis in environmental studies: exploration of Load Capacity Curve in North Africa <i>Hicham AYAD</i>	<b>Room 1</b>
16:00 16:20	Analyse du risque de stress hydrique : Approche par la théorie de ruine <i>Atik TOUAZI*</i> , <i>Karima ADEL-AISSANOU</i> and <i>Djamil AISSANI</i>	

16 :20 16 :40	Monte Carlo Simulation to Analyze the Performance of Different Parameter Estimation Methods for the Exponential Distribution <i>Brahim TAOUSSI</i>
<b>Session 3: Public Health &amp; Risk Management</b> Session chairperson: Prof. W. <b>MEROUANI</b>	
15:20 15:40	Analyse d'efficience des hôpitaux du secteur public au Mali <i>Oumar SOW</i>
15:40 16:00	On Health Expectancy Projection Methodology: A Mortality-Morbidity Relational Model <i>Farid FLICI* and Meryem CHINOUNE</i>
16:00 16:20	Modélisation des sinistres graves en assurance non-vie : Application de la méthode POT <i>Mohamed Amine KACEF* and Nour El Houda ROUABAH</i>
16:20 16:40	La théorie des valeurs extrêmes comme un outil de calcul de la Valeur à Risque <i>Hassen CHERAITIA* and Feriel BOUGHABA</i>

Room 2



**Thursday, 24<sup>th</sup> of October, 2024**

<b>Plenary Lecture 4</b>		
Session chairperson: Prof. A. BOUZID		
8:30		<b>Auditorium</b>
9:10	Mathematical Modelling for Public Policy Impact Evaluation: Theories and Practices <i>Prof. Moundir LASSASSI</i>	
9:10	<b>Parallel Sessions</b>	
10:10		
<b>Session 1: Logistic &amp; Transportation Problems</b>		
Session chairperson: Prof. L. CHABANE		
9:10	Statistical Analysis of Transportation Data: Informing Policy, Planning, and Business Decisions	<b>Auditorium</b>
9:30	<i>Yasmina GUECHARI* and Abdallah GHALEM</i>	
9:30	A Multi-Depot Time Windows Vehicle Routing Problem with Split Demand model to optimize university transportation system: case of Bejaia University, Algeria	
9:50	<i>Sarah BOUDA*, Lahna IDRES, Fazia RAHMOUNE and Zohra AOUDIA</i>	
9:50	Réduction des externalités négatives du transport de marchandises par la localisation optimale des bases logistiques de distribution	
10:10	<i>Salima KENDI*, Mohammed Said RADJEF, Abdelhakim HAMMOUDI and Fodil LAIB</i>	

<b>Session 2: Energy</b>		
Session chairperson: Dr. H. <b>BENAMIROUCHE</b>		
<b>9:10</b> <b>9:30</b>	Why Do Different Econometric Models Yield Varied Results in Exploring the Energy-Growth Nexus? <i>Abdelhadi <b>BENGHALEM</b> and Mohamed <b>BENBOUZIANE</b>*</i>	<b>Room 1</b>
<b>9:30</b> <b>9:50</b>	Risques et Défis Macroéconomiques en Algérie : Analyse ARCH-GARCH des prix du Pétrole et du Taux de Change <i>Rafika <b>ZIDAT</b>* and Kahina <b>MEHIDI</b></i>	
<b>9:50</b> <b>10:10</b>	Predicting Spot and Future Oil Prices Using Mathematical Dimensionality Reduction Methods and Machine Learning Techniques Amir <b>HASSISSI</b> , Djamilia <b>BOUKREDERA</b> and Slimane <b>GOUDJIL</b> *	
<b>Session 3: Employment</b>		
Session chairperson: Dr. A. <b>MERAH</b>		
<b>9:10</b> <b>9:30</b>	The Impact of Soft Skills, Human and Social Capital on Graduates' Professional Integration <i>Karima <b>BENBOUZID</b>* and Fatiha <b>BESSACHI</b></i>	<b>Room 2</b>
<b>9:30</b> <b>9:50</b>	Informal Employment and Occupational Choices in the Algerian Labor Market: Analysis of Forms and Determinants <i>Maya <b>GHOUFELLA</b>* and Moundir <b>LASSASSI</b></i>	
<b>9:50</b> <b>10:10</b>	Professional Integration of Young Graduates in Statistics in Algeria: Evidence of Cox – PH model <i>Fatih <b>CHELLAI</b></i>	

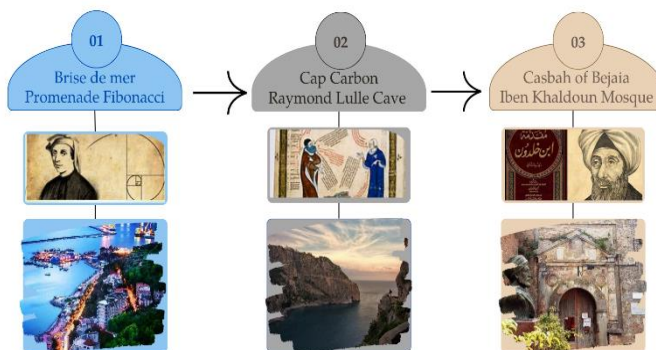
10:10 10:30	<i>Coffee break</i>	
	<b>Plenary Lecture 5</b> Session chairperson: Prof. N. TOUCHE	
10:30 11:10	Managing demographic risks in Pay-As-You-Go retirement systems <i>Prof. Farid FLICI</i>	<b>Auditorium</b>
	<b>Plenary Lecture 6</b> Session chairperson: Dr. L. IDRES	
11:10 11:50	The historical monuments and archaeological sites related to famous mathematicians who stayed in Bejaia, from the medieval period to the 19th century <i>Prof. Djamil AISSANI</i>	<b>Auditorium</b>
11:50 12:00	<b>Closing Ceremony</b>	
12:00 14:00	<i>Lunch Break</i>	
14:00 17:00	<b>Sociocultural event</b>	

## SOCIOCULTURAL EVENT

The sociocultural event consists of a circuit of three historical monuments and archaeological sites related to famous mathematicians who stayed in Bejaia, from the medieval period to the 19<sup>th</sup> century. The circuit includes:

- Visiting the “Promenade Fibonacci” place
- Visiting the Raymond Lulle cave
- A traditional collation at the Casabah of Bejaia.

### Sociocultural Circuit



*International Conference on  
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### **Acknowledgements**

The conference chairpersons would like to express their warm thanks and deep appreciation to all the sponsors for their generous support, as well as to everyone who contributed to the successful organization of the conference. Special gratitude goes to the scientific and organizing committees, volunteers, and participants for their dedication, hard work, and invaluable assistance. Without your efforts and collaboration, this event would not have been possible. We also extend our heartfelt thanks to the speakers and panellists for their insightful contributions, which made this conference a truly enriching experience for all. We hope that you enjoy the conference and find the sessions both informative and inspiring.



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