

GSUA 2025

International Congress of
Grey Systems and Uncertainty Analysis
"Grey AI and Applications"

Conference Program

October 24-27, 2025, Isparta, Türkiye



西北工业大学
NORTHWESTERN POLYTECHNICAL UNIVERSITY



GSUA



IGSAER

灰色系统研究所
GREY SYSTEM RESEARCH INSTITUTE

GSST

GREY SYSTEMS
SOCIETY OF TÜRKİYE

2025 International Congress on Grey Systems and Uncertainty Analysis (GSUA 2025)

Conference Program

Language : English

October 24-27, 2025

Location: Isparta, Türkiye



Organizational Structure

Co-Sponsored by:

International Association of Grey Systems and Uncertainty Analysis (IAGSUA)
Grey System Society of Türkiye (GSST)
Grey System Society of China (GSSC), CSOOPPEM

Hosted by:

Süleyman Demirel University (SDU), TR
Nanjing University of Aeronautics and Astronautics (NUAA), CN
International Grey System Alliance of Education and Research (IGSAER), CN

Organized by:

Department of Industrial Engineering, SDU, TR
Institute for Grey Systems Studies, NUAA, TR
Center for Grey Systems Studies, NPU, TR



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SDU ENDKAL Student Club – GSUA 2025 Team

Computer Program Chairs

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Conference Program



Schedule of the 2025 International Congress on Grey Systems and Uncertainty Analysis (GSUA 2025)

Date	Time (GMT+3)	Speakers	Host
24 th Oct. Friday	16:00-17:30	Registration	Prof. Erdal AYDEMIR
	17:30-18:30	Campus Visit of Suleyman Demirel University	
	18:30-19:30	Welcome Dinner of Suleyman Demirel University	
25 th Oct. Saturday	09:00-09:30	Registration	Prof. Erdal AYDEMIR
	09:30-10:00	SDU Academic Chamber Orchestra	
	10:00-10:20 Opening Ceremony	Welcome Speech Prof. Dr. Mehmet GENÇTÜRK (V. Rector, SDU) Assoc. Prof. Dr. Erdal AYDEMIR, SDU Prof. Dr. Naiming XIE, NUAA	Prof. Erdal AYDEMIR
	10:20-10:30	Photo & Coffee Break	
	10:30-11:15 Keynotes	Prof. Camelia Delcea Grey Systems Theory in Economics: Making Sense of Uncertainty	Prof. Ye LI
	11:15-12:00 Keynotes	Prof. Naiming XIE Grey forecasting models for Prognostics Health Management	Prof. Erdal AYDEMIR
	12:00-13:00	Lunch	
	13:15-14:30	Session A - Special Session: Grey AI for Economics and Social Sciences	Prof. Camelia DELCEA
	14:30-14:45	Coffee Break	
	14:45-16:15	Session B	Prof. Ehsan JAVANMARDI
	16:15-16:45	Poster Presentation & Coffee Break	
	16:45-18:00	Session C	Prof. Ewa WIECEK- JANKA
	18:00-19:00	Gala Dinner	

Schedule of the 2025 International Congress on Grey Systems and Uncertainty Analysis (GSUA 2025)

Date	Time (GMT+3)	Speakers	Host
26 th Oct. Sunday	08:00-09:30	Online Session D (Tencent Meeting: 243911789)	Prof. Erdal AYDEMIR & Prof. Liangyan TAO
	09:30-10:30	Session E	Prof. Peng JIANG
	10:30-10:45	Coffee Break	
	10:45-12:00	Education and Development Forum of IGSAER: Prof. Camelia DELCEA, Prof. Rafal MIERZWIAK, Prof. Erdal AYDEMIR, Prof. Peng JIANG, Prof. Ye LI, Prof. Naiming Xie	Prof. Junjie WANG
	12:00-12:15	Closing Ceremony & Award	Prof. Erdal AYDEMIR
	12:15-13:30	Lunch	
27 th Oct. Monday	10:30-12:00	Campus Visit of Süleyman Demirel University	Prof. Erdal AYDEMIR
	12:30 -13:30	Lunch at Süleyman Demirel University	
	13:30-15:00	Campus Visit of Süleyman Demirel University	Prof. Erdal AYDEMIR
	15.00-15:30	Transfer to Isparta Airport	

Schedule of the 2025 International Congress on Grey Systems and Uncertainty Analysis (GSUA 2025)

General Schedule of Sessions

Session No.	Date	Time	Chair	Nominating Committee for Excellent Papers
A	25th Oct	13:15-14:30	Prof. Camelia DELCEA	Prof. Junjie WANG, Prof. Wenjie DONG
B	25th Oct	14:45-16:15	Prof. Ehsan JAVANMARDI	Prof. Erdal AYDEMIR, Prof. Mingli HU
C	25th Oct	16:45-18:00	Prof. Ewa WIECEK-JANKA	Prof. Camelia DELCEA, Prof. Ye LI
D	26th Oct	08:00-09:15	Prof. Erdal AYDEMIR	Prof. Liangyan TAO
E	26th Oct	09:15-10:30	Prof. Peng JIANG	Prof. Rafal MIERZWIAK, Prof. Mingli HU

Schedule of the 2025 International Congress on Grey Systems and Uncertainty Analysis (GSUA 2025)

Session A

[Special Session]

Session Chair: Prof. Camelia DELCEA

Date: 25th October 2025

Time: 13:15-14:30, 10 min/person

Nominating Committee for Excellent Papers: Prof. Camelia DELCEA, Prof. Junjie WANG, Prof. Wenjie DONG

Paper Title	Speaker
Regional Risk Profiling in Romania and Moldova: Political and Security Insights via Grey Systems	Camelia DELCEA
Segmenting the Job Market: A Hybrid Grey Clustering–ABM Framework	Liviu-Adrian COTFAS
Grey relational analysis model. Application in evaluating digitalisation impact on economic prosperity	Georgiana-Alina CRIȘAN
Green Supplier Selection using Grey Systems Theory and Sustainable Multicriteria Decision. A Case Study on Automotive Suppliers	Adrian DOMENTEANU
Towards Balanced Regional Development: A Grey Systems Perspective on Romania’s Economic, Social, and Ecological Indicators	Bianca CIBU

Schedule of the 2025 International Congress on Grey Systems and Uncertainty Analysis (GSUA 2025)

Session B

Session Chair: Prof. Ehsan JAVANMARDI

Date: 25th October 2025

Time: 14:45-16:15, 10 min/person

Nominating Committee for Excellent Papers: Prof. Ehsan JAVANMARDI,
Prof. Erdal AYDEMIR, Prof. Mingli HU

Paper Title	Speaker
Market Sophistication in North Africa and West Asia: Future Performance Projection with Grey System Theories	Mehmet MAZAK
Unveiling Corporate Involution in Manufacturing: A Grey-DANP and System Dynamics Approach to Multidimensional Measurement, Mechanism Analysis, and Governance	Zhaohu DONG
A Novel Grey Multivariable Prediction Model for Forecasting Electricity Consumption Considering the Accumulative Time Lag Effects from Energy Transition and Technological Innovation	Ying CAI
A novel seasonal time-varying discrete grey power model and its application in solar power generation forecasting	Liangshuai LI
Identifying and Prioritizing Critical Success Factors in Ergonomic Project Management Using the Grey-DEMATEL Method	Rafal MIERZWIAK
An improved power-driven grey model for forecasting renewable energy demand	Jiarong CHEN

Poster Paper Presentation:

Paper Title	Speaker
University workers wellbeing and bournout – qualitative approach with an application of grey relation analysis	Ewa WIECEK-JANKA

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Session C

Session Chair: Prof. Ewa WIECEK-JANKA

Date: 25th October 2025

Time: 16:45-18:00, 10 min/person

Nominating Committee for Excellent Papers: Prof. Ewa WIECEK-JANKA,
Prof. Camelia DELCEA, Prof. Ye LI

Paper Title	Speaker
Risk Analysis of Prefabricated Construction Project Based on Grey Cluster Evaluation Model	Peng JIANG
Determination Method and Multi-Domain Extension of GM (1,1) Exponent Term Coefficient Based on Error Minimization	Wenjie DONG
China's nuclear power generation forecasting based on a novel prediction framework containing WPD and proposed grey prediction model and LSTM-RF	Junjie WANG
Conceptualizing Dynamic Multi-Level Grey Space for Uncertainty Modeling: A Belief-System-Oriented Framework	Ehsan JAVANMARDI
A Fractional Grey Model Based on Fourier Series Residual Correction and Its Application	Mingli HU
Dynamically informed conformable fractional discrete GM (1, N) model with probabilistic time-lag response and its application	Lin-Yun YANG

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Session D

[Online Session]

Session Chair: Prof. Erdal AYDEMIR

Date: 26th October 2025

Time: 08:00-09:30 (13:00-14:30 Beijing Time), 10 min/person

Meeting Platform: Tencent Meeting (VooV): 243911789

Nominating Committee for Excellent Papers: Prof. Erdal AYDEMIR, Prof. Liangyan TAO

Paper Title	Speaker
A Novel Grey Procrustes Relational Analysis Model Incorporating Time-Lag Effects	Honghua WU
A novel grey interactive difference relational analysis model for high-quality development assessment	Aqin HU
Forecasting China's thermal power generation using a novel multivariable time-delay grey model	Youyang REN
Forecasting China's wind power consumption using a novel fractional-order time delay grey model	Yiyang FU
Multi-attribute Decision Analysis on Three-parameter Interval Grey Number Based On “U”-shaped Possibility	Jianxun DONG
A new time-varying oscillatory fractional-order TFOGM $(1, N, r_i)$ power model and its application	Ye LI
A Multivariate Grey Bernoulli Model Based on Damping Accumulation and Its Application in the High-Tech Industry	Sandang GUO
Integrating Sustainability and Industry 4.0 Criteria in ERP Software Selection using Grey OPA	Mustafa Said YURTYAPAN
Comparison of AFL Player Performance Evaluation Systems with the Interval Grey Number Approach	Cansu ALTAN KOYUNCU

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Session E

Session Chairs: Prof. Peng JIANG

Date: 26th October 2025

Time: 09:30-10:30, 10 min/person

Nominating Committee for Excellent Papers: Prof. Junjie WANG, Prof. Rafal MIERZWIAK, Prof. Mingli HU

Paper Title	Speaker
A novel nonlinear discrete multivariable grey prediction model incorporating dynamic spatial proximity effect and its application	Yuanping DING
Verification and validation of grey agent-based simulation	Mustafa Emrah BURHAN
Coal Consumption Forecasting Considering Low-Carbon City Pilot Policies-Based on Improved Gray Forecasting Model with Dummy Variables	Yaowei TANG
Lithium-ion battery remaining useful life prediction based on a hybrid method of improved GM (1, N) model and Gaussian process regression	Min SUN
Optimal strategies for a multi-tier closed loop supply chain considering power structure and the interaction between consumers' dual preferences	Huihui ZHANG

