FSDM 2026

The 12th International Conference on

Fuzzy Systems and Data Mining

November 20-23, 2026 City University of Macau, Macao, China



Organizers

Bosen Academic Research Institute

MEG 澳門博覽集團有限公司 MACAU EXPO GROUP LIMITED

Co-organizer

澳門城市大學 City University of Macau

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For FSDM 2026 Academic Exchange Only

Part I Conference Program Overview

Day 1: Friday, November 20, 2026

Time	Activities	Location
14:00-18:00	Registration	City University of Macau

Note for on-site registration:

* Please let us know your name or abstract / paper number for registration.
* Please pick up all the conference materials at the registration desk (Name Card, Conference Program, Dining Tickets, Tour ticket etc.).

Day 2: Saturday, November 21, 2026

Time	Activities	Location
09:00-09:05	Opening Speech	City University of Macau
09:05-09:45	Keynote Speech 1	
09:45-10:25	Keynote Speech 2	
10:25-10:45	Group Photo	
10:45-11:00	Coffee Break	
11:00-11:40	Keynote Speech 3	
11:40-12:00	Invited Speech 1	
12:00-13:30	Lunch Break	
14:00-17:35	Parallel Oral Session 1	
14:00-17:40	Parallel Oral Session 2	
18:00-20:30	Welcome Banquet	Macau Tower

Day 3: Sunday, November 22, 2026

Time	Activities	Location
09:00-12:40	Parallel Oral Session 3	City University of Macau
09:00-12:35	Parallel Oral Session 4	
12:40-13:30	Lunch Break	
14:00-17:05	Oral Session 5	
17:05-17:35	Open-Microphone Session	
17:35-18:20	Follow-Up Collaboration Session	

Day 4: Monday, November 23, 2026

Time	Activities	Location
09:00-16:00	Field Investigation	Macao City

Part II Conference Program in Details

DAY 1 | November 20, 2026 (Friday)

Location:	**City University of Macau**
Address:	**Avenida Padre Tomás Pereira , Taipa, Macau**
14:00-18:00	**Registration**

DAY 2 | November 21, 2026 (Saturday)

Opening, Keynote and Invited Speeches	
Hosts:	**Prof. Dimiter Velev**, University of National and World Economy, Bulgaria (Tentatively) **Dr. Konstantin Ryabinin**, Heidelberg University, Germany (Tentatively)
09:00-09:05	**Opening & Welcoming Speech** **Prof. Vilem Novak,** University of Ostrava, Czech Republic (Tentatively)
09:05-09:45	**Keynote Speech 1:** Processing and Mining Information from Time Series Using Fuzzy Modeling Methods **Prof. Vilem Novak,** University of Ostrava, Czech Republic
09:45-10:25	**Keynote Speech 2:** Future Applications Based on Mobile Clouds and Software-Defined Networks **Prof. Sergei Gorlatch**, University of Muenster, Germany
10:25-10:45	**Group Photo**
10:45-11:00	**Coffee Break**
11:00-11:40	**Keynote Speech 3:** On Set-Valued Choquet Integrals **Prof. Deli Zhang,** Changchun Normal University, China
11:40-12:00	**FSDM4986 (Invited Speech 1):** Equations in Ω-algebra in Classical Setting **Prof. Andreja Tepavcevic,** Mathematical Institute SANU, Serbia
12:00-13:30	**Lunch Break**
Parallel Oral Session 1: Fuzzy Set Theory, Algorithm and System	
Session Chairs:	**Prof. Samad Noeiaghdam,** Henan Academy of Sciences, China **Prof. Andreja Tepavcevic,** Mathematical Institute SANU, Serbia
14:00-14:20	**FSDM4906 (Invited Speech 2):** From Crisp to Fuzzy Volterra Integral Equations: Piecewise Discontinuous Kernels and Proportional Delay **Prof. Samad Noeiaghdam**, Henan Academy of Sciences, China

14:20-14:35	**FSDM4928:** A Hybrid Machine Learning and Interval Type-2 Fuzzy TOPSIS for River Pollution Assessment and Mitigation in Terengganu **Assoc. Prof. Nurnadiah Zamri**, Universiti Sultan Zainal Abidin, Malaysia
14:35-14:50	**FSDM4937:** The Analytic Center Falling Algorithm for Linear Programming **Dr. Hochung Lui**, Independent Researcher, Hong Kong, China
14:50-15:05	**FSDM4888:** A New Approach for Assessing Corporate Governance Quality: Incorporating Left and Right Indices in Multi-Criteria Decision Making **Assoc. Prof. Ngoc Minh Thi Luu**, Vietnam National University, Vietnam
15:05-15:20	**FSDM4994:** When Coverage Is Not Enough: Outcome-Free Observability Stress Testing for Fuzzy Student-Readiness Profiling **Asst. Prof. Chantana Simtrakankul**, Suranaree University of Technology, Thailand
15:20-15:40	**Coffee Break**
15:40-15:55	**FSDM4996:** Characterizing the Failure Regimes of Fuzzy C-Means in Multivariate Semicontinuous Data: A Controlled Study of Excess-Zero Structure **Mr. Papon Tantiwanichanon**, Suranaree University of Technology, Thailand
15:55-16:10	**FSDM4899:** Three Measures and Decision Tree for Interval Set Decision Information Systems with Two Granular Structures **Dr. Xin Xie**, Guangxi University, China
16:10-16:25	**FSDM4875:** A Computer-Aided Fuzzy Clustering-Based Improvement Method to Translation Evaluation and Market Segmentation **Mr. Yatong Wu**, Xi'an Petroleum University, China
16:25-16:40	**FSDM4998:** Tail-Risk-Aware MQ Shape Selection for Kansa Collocation under Node Perturbations: Density-Dependent Numerical Brittleness **Asst. Prof. Pornthip Pongchalee**, Rajamangala University of Technology Isan, Thailand
16:40-16:55	**FSDM5037:** Fuzzy Information Granulation in Metagraphs Based on Fuzzy Junction Points **Dr. Yuriy Gapanyuk**, Bauman Moscow State Technical University, Russia
16:55-17:05	**Presenting Onsite-Oral Presentation Certificates**
Below are pre-recorded video oral presentations. Please watch the videos online via (http://www.academicconf.com/video?confname=fsdm2026) during the conference period.	
17:05-17:20	**FSDM5018:** Adaptive Hybrid Framework for Natural Disaster Damage Assessment Using Fuzzy Logic and Generative Models **Prof. Plamena Zlateva**, University of National and World Economy, Bulgaria
17:20-17:35	**FSDM4988:** A Power Set Scale for Expectation Intervals of Belief Functions **Dr. Xingyuan Chen**, University of Electronic Science and Technology of China, China
Parallel Oral Session 2: Natural Language Processing, AI, and Intelligent Computing for Society, Education, and Interdisciplinary Applications	
Session Chairs:	**Prof. Dimiter Velev,** University of National and World Economy, Bulgaria (Tentatively) **Assoc. Prof. Yiu-Kai Ng,** Brigham Young University, USA (Tentatively)
14:00-14:20	**FSDM5019 (Invited Speech 3):** Functionally Justified Integration of Quantum Computing, Generative Artificial Intelligence and Extended Reality for Adaptive Immersive Learning **Prof. Dimiter Velev**, University of National and World Economy, Bulgaria
14:20-14:40	**FSDM4881 (Invited Speech 4):** Towards Digital Twins for Energy Transmission Infrastructure: Multimodal Sensing, Data Fusion, and Early-Warning Analytics **Dr. Martin Bobak**, Slovak Academy of Sciences, The Slovak Republic

14:40-14:55	**FSDM4975:** Debating the Truth: Multi-Agent Misinformation Detection with Social and Credibility Evidence **Assoc. Prof. Yiu-Kai Ng**, Brigham Young University, USA
14:55-15:10	**FSDM5006:** Prefix-Only Regime-Aware Conformal Regret Gating for Dispatching-Policy Selection in Online Flexible Job Shops **Assoc. Prof. Nara Samattapapong**, Suranaree University of Technology, Thailand
15:10-15:25	**FSDM4974:** Deep Learning-Based Identification of Cultural Landscape Narrative Structure in Agriculture–Culture–Tourism Integrated Rural Homestays **Dr. Yidan Zhu**, Hunan Women's University, China
15:25-15:45	**Coffee Break**
15:45-16:00	**FSDM5031:** A Bilingual NAO Humanoid Robot Assistant Using a Client–Server Architecture: System Design and Functional Evaluation **Mr. Steven Ka-Kin Chong**, Hong Kong Computer Society, China
16:00-16:15	**FSDM4897:** Comparative Analysis of Deep Learning Models for Agricultural Land Potential Mapping Using Multispectral Satellite Imagery **Mr. Tuan Anh Tran**, Foreign Trade University, Vietnam
16:15-16:30	**FSDM5022:** Research on the Competency Reconstruction and Pathway Optimization for Talent Cultivation in Library and Information Science from the Perspective of Education 5.0 **Prof. Yufang Peng**, Nanjing Institute of Technology, China
16:30-16:45	**FSDM4985:** Imbalance-Aware Binary Particle Swarm Optimization for Feature Selection in Household Poverty Severity Classification **Dr. Supailin Pichai**, Loei Rajabhat University, Thailand
16:45-17:00	**FSDM4956:** Exploring the Impact of Renewable Energy Consumption Absorption System on the Development of Green Economy **Prof. Lianbiao Cui**, Anhui University of Finance and Economics, China
17:00-17:15	**FSDM4880:** Exploring Jesus' Relationship with His Disciples and Analyzing His Teachings in the Gospels Using Natural Language Processing and VADER **Dr. Electa Alice Jayarani A**, K. S. Institute of Technology, India
17:15-17:25	**Presenting Onsite-Oral Presentation Certificates**
Below are pre-recorded video oral presentations. Please watch the videos online via (http://www.academicconf.com/video?confname=fsdm2026) during the conference period.	
17:25-17:40	**FSDM4990:** Ethical Risks of GenAI Application in College Ideological and Political Education: A Moral Alienation Perspective **Dr. Yanyu Zhou**, National University of Defense Technology, China
18:00-18:30	**Depart for Macau Tower** Gather at: Rotunda Dr. Carlos A. C. P. D'Assumpção Bus Stop T307 (alongside the uphill road to CityU main gate) 宋玉生博士圓形地巴士站 T307（城大校門上坡旁）
18:30-20:30	**Welcome Banquet at Macau Tower**

DAY 3 | November 22, 2026 (Sunday)

Parallel Oral Session 3: Interdisciplinary Field of Fuzzy Logic and Data Mining	
Session Chair:	**Dr. Konstantin Ryabinin,** Center for Astronomy of Heidelberg University, Germany (Tentatively)

09:00-09:20	**FSDM5025 (Invited Speech 5):** Multimodal Fusion and Efficient Spatiotemporal Modeling for Traffic Forecasting **Prof. Chao Zhang**, Shanxi University, China
09:20-09:35	**FSDM4895:** NChart3D: Multiplatform Library for Big Data Visual Mining **Dr. Konstantin Ryabinin**, Center for Astronomy of Heidelberg University, Germany
09:35-09:50	**FSDM4896:** Vision-Based Parking Guidance Using YOLOv11-OBB, DeepSORT, and A* Routing **Dr. Dinh-Thai Kim**, International School, Vietnam National University, Vietnam
09:50-10:05	**FSDM4997:** Do Debt Sources Form Preferred Combinations? A Degree-Preserving Null Audit of Multi-Source Household Borrowing Across Thai Districts **Assoc. Prof. Worarit Kopsiripat**, Nakhon Ratchasima Rajabhat University, Thailand
10:05-10:20	**FSDM4898:** Bank Loan Approval Prediction Using an Ensemble Machine Learning Approach **Dr. Manh-Hung Ha**, International School, Vietnam National University, Vietnam
10:20-10:40	**Coffee Break**
10:40-10:55	**FSDM5047:** Can Machine Learning Generalize to Unseen Polymers in Electrospinning? **Dr. Wiwat Nuansing**, Suranaree University of Technology, Thailand
10:55-11:10	**FSDM5052:** Mechanisms of Mutual Adaptation in Russian Translations of Xi Jinping's Governmental Discourse: A Fuzzy Metagraphic Analysis of Metaphor Propagation **Prof. Irina Karabulatova**, Heilongjiang University in Harbin, China; Lomonosov Moscow State University, Russia
11:10-11:25	**FSDM5014:** Customer Trust and Consumer Repurchase Intention in Cross-Border E-Commerce: A PLS-SEM Study in Guangdong, China **Mr. Bin Lin**, Xidian University, China
11:25-11:40	**FSDM4991:** Assessing the Generalization of Swarm-Tuned Adaptive Activation Functions in Tabular Neural Networks under Compute-Matched Nested Cross-Validation **Mr. Suraphol Pudhom**, Suranaree University of Technology, Thailand
11:40-11:55	**FSDM5026:** Pseudo-Differential Operators on Besov Spaces over Locally Compact Groups **Dr. Maryam Iqbal**, University of Johannesburg, South Africa
11:55-12:05	**Presenting Onsite-Oral Presentation Certificates**
Below are pre-recorded video oral presentations. Please watch the videos online via (http://www.academicconf.com/video?confname=fsdm2026) during the conference period.	
12:05-12:25	**FSDM5030 (Invited Speech 6):** Embodied AI for Sustainable Agriculture: Intelligent Sensing, IoT, and the Future of Post-Harvest Management **Dr. Razia Sulthana Abdul Kareem**, University of Greenwich, UK
12:25-12:40	**FSDM5020:** A Conceptual Model for Intelligent Training in Natural Disaster Risk Management Using Digital Twins and Generative Artificial Intelligence **Prof. Dimiter Velev**, University of National and World Economy, Bulgaria
Parallel Oral Session 4: Special Session on Digital Transformation from Omics to Primary Care in Decentralized Health Systems (Omics2Care)	
Session Chair:	**Dr. Wiwat Nuansing**, Suranaree University of Technology, Thailand
09:00-09:15	**FSDM4963:** Heat Transfer Simulation in Biological Tissues: A Perspective on Mathematical Models, Numerical Methods and Biomedical Applications **Prof. Citlaly Castillo Rodríguez**, Autonomous University of Coahuila, Mexico
09:15-09:30	**FSDM5003:** A Data Mining-Driven Intelligent Retrieval-Augmented AI Chatbot for Workplace Mental Health Monitoring **Assoc. Prof. Nurnadiah Zamri**, Universiti Sultan Zainal Abidin, Malaysia

09:30-09:45	**FSDM4979:** Fuzzy-Based Depth-First Sequential Pattern Mining from Health Administration Data for Early Detection of Juvenile Arthritis **Prof. Carson K. Leung**, Brandon University, Canada
09:45-10:00	**FSDM5009:** Explainable Text Mining of Medical Chatbot Outputs Using Multi-Word Units and Finite Automata **Prof. Alberto Postiglione**, University of Salerno, Italy
10:00-10:20	**FSDM4989 (Invited Speech 7):** AI-Aging: An Integrated Omics-to-Primary Care Digital Infrastructure for Decentralized Longevity Health Systems **Prof. Ming Chen**, Zhejiang University, China
10:20-10:40	**Coffee Break**
10:40-10:55	**FSDM5008:** Completion-Stable Ordinal Triage under Missing Clinical Panels for Prediabetes Screening **Dr. Nattapat Khumtong**, Suranaree University of Technology, Thailand
10:55-11:10	**FSDM5034:** What Can a Short Knowledge Test Certify? Fuzzy Three-Way Decisions for Follow-Up in Community Diabetes Education **Dr. Chutrapee Popitikul**, Nakhon Ratchasima Rajabhat University, Thailand
11:10-11:25	**FSDM5013:** Robust Data-Driven Stratification of Multidose Drug-Response Profiles in Hepatoblastoma Patient-Derived Organoids **Ms. Qiong Liu**, Beijing Normal-Hong Kong Baptist University, China
11:25-11:40	**FSDM4993:** Physiological-Path-Preserving Observation Refinement for Stress Testing Recurrent ICU Mortality Models under Irregular Sampling **Ms. Janejira Laomala**, Suranaree University of Technology, Thailand
11:40-11:55	**FSDM5036:** A Controlled Evaluation of Entropy-Pooling Gates for Parameter-Efficient Adaptation under Breast Ultrasound Domain Shift **Mr. Ratapong Onjun**, Suranaree University of Technology, Thailand
11:55-12:10	**FSDM5023:** Automatic Segmentation of High-Grade Gliomas in Pediatric Patients Using an Entropy-Weighted Hybrid Pooling SegResNet Model **Mr. Arturo Iván Hernández Salas**, Autonomous University of Coahuila, Mexico
12:10-12:20	**Presenting Onsite-Oral Presentation Certificates**
Below are pre-recorded video oral presentations. Please watch the videos online via (http://www.academicconf.com/video?confname=fsdm2026) during the conference period.	
12:20-12:35	**FSDM5028:** Physics-Informed Neural Networks (PINNs) for Predicting Tumor Growth **Ms. Mariana Sanchez-Zapata**, Autonomous University of Coahuila, Mexico
12:40-13:30	**Lunch Break**

Oral Session 5: Special Session on Applied Mathematics and Intelligent Algorithms for Modern Industry (AMIAMI), 3rd Edition	
Session Chairs:	**Assoc. Prof. Sayan Kaennakham**, Suranaree University of Technology, Thailand **Prof. Felix Raymundo Saucedo Zendejo**, Research Center for Applied Mathematics, Autonomous University of Coahuila, Mexico
14:00-14:20	**FSDM5053 (Invited Speech 8):** AI-Driven Anomaly Detection for Industrial Control Systems: From Structural Context to Reliable Diagnosis **Prof. Donghoon Shin**, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Republic of Korea
14:20-14:35	**FSDM4940:** Seeing Less While Knowing More – Alert-Driven Pattern Mining in Large-Scale Control Systems **Prof. Wieland Schwinger**, Johannes Kepler University, Austria

14:35-14:50	**FSDM4964:** RainEye: A Weather-Aware IoT and Deep Learning System for Low-Latency Urban Flood Detection and Alerting **Dr. Mohammed Jubur**, Jazan University, Saudi Arabia
14:50-15:05	**FSDM4894:** Hybrid Approach to Modularization of Monolithic Application **Dr. Martin Bobak**, Slovak Academy of Sciences, The Slovak Republic
15:05-15:20	**FSDM5005:** Selection-Preserving Event-Triggered Multiquadric Adaptation in DRBEM for Nonlinear Reaction-Diffusion Equations **Asst. Prof. Krittidej Chanthawara**, Ubon Ratchathani Rajabhat University, Thailand
15:20-15:40	**Coffee Break**
15:40-15:55	**FSDM4892:** Enhanced G-Learning and Generative Inverse Reinforcement Learning for Goal-Based Wealth Management with Adaptive Risk Adjustment **Mr. Tuan Anh Tran**, Foreign Trade University, Vietnam
15:55-16:10	**FSDM4992:** When Search Geometries Disagree: A Controlled Study of Discordance-Regularized Firefly Hyperparameter Optimization **Mr. Narongdech Dungkratoke**, Suranaree University of Technology, Thailand
16:10-16:25	**FSDM5017:** TRACE-VQ: Temporal-Aware Latent Formation with Shared-Routed Experts for Cross-Sectional Stock Prediction **Mr. Junwei Gan**, South China Normal University, China
16:25-16:40	**FSDM4984:** A Network for Open-Set Recognition of Wi-Fi RF Fingerprints Based on CNN and Mamba Style Modules **Ms. Ming Gu**, Sichuan University, China
16:40-16:55	**FSDM5049:** Risk-Aware Scenario Planning for Collaborative Community Recycling Using Transaction Data **Dr. Vichet Ludpa**, Yasothon Community College, Thailand
16:55-17:05	**Presenting Onsite-Oral Presentation Certificates**
Below is pre-recorded video oral presentation. Please watch the videos online via (http://www.academicconf.com/video?confname=fsdm2026) during the conference period.	
	FSDM5012: Computational Modelling of Problems Associated with the Heat, Wave, and Burgers Equations Using PINNs and GFDM **Mr. Oscar Joel Castro Contreras**, Autonomous University of Coahuila, Mexico
17:05-17:35	**Open-Microphone Session** Chaired by Dr. Konstantin Ryabinin, Heidelberg University, Germany
17:35-18:20	**Follow-Up Collaboration Session** Chaired by Assoc. Prof. Sayan Kaennakham, Suranaree University of Technology, Thailand

DAY 4 | November 23, 2026 (Monday)

Field Investigation | Time: 09:00-16:00

Part III Keynote & Invited Speeches



Keynote Speech 1: *Processing and Mining Information from Time Series Using Fuzzy Modeling Methods*

Speech Time: 09:05-09:45, November 21, 2026 (Saturday)

Speaker: Prof. Vilem Novak, University of Ostrava, Czech Republic

Biography: Prof. Vilém Novák, DSc. is founder of the Institute for Research and Applications of Fuzzy Modeling of the University of Ostrava, Czech Republic. He obtained PhD in mathematical logic at Charles University in Prague, DSc. (Doctor of Sciences) in computer science in Polish Academy of Sciences, Warsaw, full professor at Masaryk University, Brno. His research activities include mathematical fuzzy logic, approximate reasoning, mathematical modeling of linguistic semantics, fuzzy control, processing of time series, and applications of fuzzy modeling. He is pioneer of the fuzzy set theory and author or co-author of 6 monographs and over 350 papers with almost 10000 citations.

Abstract: We will present special techniques of fuzzy modeling suitable for applications in time series processing, namely the Fuzzy Transform (F-transform) and selected methods of Fuzzy Natural Logic (FNL). The F-transform is applied to estimation of the trend or trend-cycle of time series, and to estimation of the slope of time series over an imprecisely specified area. Our methods are based on the decomposition of the time series into 4 components: trend, cycle, seasonal component, and random disturbances. The fuzzy transform makes it possible to find arbitrary shape of the trend or trend-cycle. It has been proved that using the F-transform, we can eliminate seasonal component and significantly reduce noise. Moreover, the computational complexity is low. Methods based on FNL have applications in mining information from time series. Among them, let us mention reduction of dimensionality, finding intervals of monotonous behavior and their characterization using expressions of natural language, finding perceptually important points, measure of similarity between time series, or automatic summarization of knowledge about time series. We also suggest a powerful method for detection and statistical testing of structural breaks in time series. We will compare our methods with traditional methods and demonstrate that they can on one hand successfully compete with them and on the other hand, both kinds of methods can be combined to increase the effectivity of the processing of time series.

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Keynote Speech 2: *Future Applications Based on Mobile Clouds and Software-Defined Networks*

Speech Time: 09:45-10:25, November 21, 2026 (Saturday)

Speaker: Prof. Sergei Gorlatch, University of Muenster, Germany



Biography: Sergei Gorlatch is Full Professor of Computer Science at the University of Muenster (Germany) since 2003. Earlier he was Associate Professor at the Technical University of Berlin, Assistant Professor at the University of Passau, and Humboldt Research Fellow at the Technical University of Munich, all in Germany. Prof. Gorlatch has more than 200 peer-reviewed publications in renowned international books, journals and conferences. He was principal investigator in several international research and development projects in the field of software for parallel, distributed, Grid and Cloud systems, machine learning, and networking, funded by the European Community and by German national bodies.

Abstract: We consider an emerging class of high-performance applications called Real-Time Online Interactive Applications (ROIA). ROIA are networked applications connecting a potentially very high number of users who interact with the application and with each other in real time, i.e., a response to a user's action happens virtually immediately. Typical representatives of ROIA are multiplayer online computer games, advanced simulation-based e-learning, and real-time data mining. All these applications are characterized by

high performance and QoS requirements, such as: short response times to user inputs (about 0.1-1.5 s); frequent state updates (up to 100 Hz); large and frequently changing numbers of users in a single application instance (up to tens of thousands simultaneous users). This talk will specifically address two challenging aspects of future applications: a) using Mobile Cloud Computing for allowing high application performance when a ROIA application is accessed from multiple mobile devices, and b) managing dynamic QoS requirements of ROIA applications by employing the emerging technology of Software-Defined Networking (SDN).

Keynote Speech 3: *On Set-Valued Choquet Integrals*



Speech Time: 11:00-11:40, November 21, 2026 (Saturday)

Speaker: Prof. Deli Zhang, Changchun Normal University, China; Director of the Jilin Provincial Key Laboratory of Mathematical Soft Computing and Applications, China

Biography: Deli Zhang is a first-class professor and doctoral supervisor. He formerly served as the vice president of Changchun Normal University. He also holds the position of director of the Jilin Provincial Key Laboratory of Mathematical Soft Computing and Applications and provincial education inspector for the Jilin Provincial Government. He is recognized as a high-level Category A talent of Jilin Province, a member of the Second Expert Working Committee on Basic Education Curriculum and Textbooks of the Ministry of Education, the vice chairman of the First Professional Committee on Mathematical Teaching Guidance for Basic Education of the Ministry of Education, the vice chairman of the Fuzzy Mathematics and Fuzzy Systems Professional Committee of the Chinese Society of Systems Engineering, and the vice president of the Jilin Mathematical Society. His accolades include one second prize of the National Teaching Achievement Award, one first prize of the Jilin Provincial Natural Science Award, one second prize of the Jilin Provincial Scientific and Technological Progress Award, one special prize of the Jilin Provincial Teaching Achievement Award. His primary research areas encompass non-additive measure theory, fuzzy mathematics, and mathematics education. He has published over 100 research papers, more than 50 of which have been indexed by SCI and CCSCI, and has authored two monographs: "Generalized Integral Theory" and "Fuzzy Integral Theory," as well as served as the editor-in-chief of over 50 books and textbooks. He currently serves as a reviewer for the "American Mathematical Review," and as an editorial board member for "Fuzzy Systems and Mathematics," "American Journal of Applied Mathematics," and "Mathematics and Computer Science." He has led or participated in four general research projects funded by the National Natural Science Foundation of China and three general research projects funded by the Jilin Provincial Natural Science Foundation.

Abstract: As a generalization of the classical Lebesgue integral, set-valued integrals had been greatly developed, and widely applied in fields such as Mathematical Economy, Control Theory, Optimization Theory. In recent years, based on nonadditive integrals, various kinds of set-valued nonadditive integrals were developed. As a powerful tool for modeling nondeterministic problems and a typical nonadditive integral, the Choquet integral has attracted much attention. This lecture gives an overview of several existing set-valued Choquet integrals: (i) Choquet integrals of set-valued functions with respect to set-valued fuzzy measures, which include the special cases of Choquet integrals of set-valued functions with respect to fuzzy measures and of single-valued functions with respect to set-valued fuzzy measures; (ii) Generalized Choquet type set-valued integral (GCTSI) of single-valued functions with respect to set-multifunctions and additive measures; (iii) Double set-function multi-valued Choquet integral (DSMVCI) for single-valued functions with respect to set-multifunctions and fuzzy measures. Various kinds of their properties and convergence theorems are shown, and some set-valued type inequalities, such as Jensen's and Markov's are given. Related to many applications in different fields, such as decision-making, are provided.

Invited Speech 1: *Equations in Ω-algebra in Classical Setting*

Speech Time: 11:40-12:00, November 21, 2026 (Saturday)



Speaker: Prof. Andreja Tepavcevic, Mathematical Institute SANU, Serbia

Biography: Dr. Andreja Tepavcevic is a principal research fellow at the Mathematical Institute of the Serbian Academy of Sciences and Arts (Mathematical Institute SANU) in Belgrade, Serbia, and a full professor at the Department of Mathematics and Informatics, Faculty of Sciences, University of Novi Sad. She graduated with two tracks in Informatics and Mathematics and defended a Ph.D. thesis at the University of Novi Sad. She was a visiting professor and gave courses and seminar lectures at more than 25 universities worldwide, including many EU countries, Japan, the USA, Russia, and others. She gave tutorials at FUZZ-IEEE conferences and was a plenary and invited speaker at many conferences. She supervised six Ph. D.s, several master's and graduate theses. Her main research is in lattice theory and theory of ordered sets; fuzzy set theory and applications, with about 200 refereed publications in journals, chapters in monographs, international conferences, one research monograph, and 10 university textbooks. She is an associate editor and a member of the editorial board of several journals, including Fuzzy Sets and Systems, the coordinator of several research projects (national and international), and the head or a member of organizing and program committees of several conferences. From 2023-2026, she is the coordinator of the project "Advanced Techniques of Mathematical Aggregation and Approximative Equations Solving in Digital Operational Research - AT-MATADOR" financed by the Science Fund of the Republic of Serbia. Currently, she is the chairperson of the Artificial Intelligence Seminar at Mathematical Institute SANU http://www.mi.sanu.ac.rs/novi_sajt/research/seminars/ai.php and the head of the Computer Science department at Mathematical Institute SANU.

Abstract: An Ω-algebra is a kind of fuzzy algebra in the lattice-valued framework, with an algebra equipped with a lattice-valued equality. Algebra identities are satisfied as special lattice-valued formulas, and as a consequence, cuts of equality correspond to weak congruences of the underlying crisp algebra. In earlier work, we investigated many types of Ω-algebras. Recently, in an attempt to study consequences of our work in the classical setting with the [0,1] interval, we have studied connections with chains in weak congruence lattices. Building on this foundation, we now turn to the classical setting of Ω-groups and Ω-quasigroups, where subgroup lattices and weak congruence lattices interact directly with the solvability of equations. Classical group theory provides deep results on solvability: equations in groups are closely tied to subgroup chains, normal series, and congruence relations. In particular, solvability of equations often reflects the structure of chains in subgroup lattices, such as composition series or chains of normal subgroups. These chains serve as algebraic witnesses to the existence of solutions, linking lattice-theoretic properties with equation solvability. Similarly, in quasigroups, congruence chains impose constraints on the solvability of functional equations, revealing structural parallels with group theory. Our contribution demonstrates that chains of weak congruences in Ω-groups can be systematically aligned with chains in subgroup lattices, thereby providing a lattice-valued framework for analyzing solvability of equations. Extending this approach to Ω-quasigroups, we show how weak congruence chains capture algebraic conditions that govern equation solvability in non-associative settings. These results enrich the representation theory of Ω-algebras by connecting chains of weak congruences with classical solvability theory, offering a unified perspective that bridges discrete subgroup lattices, weak congruence structures, and equation systems in both groups and quasigroups. In this way, by dealing with numbers, we are able to approximately solve some types of equations.

Invited Speakers



Prof. Andreja Tepavcevic
Mathematical Institute SANU, Serbia



Prof. Samad Noeiaghdam
Henan Academy of Sciences, China



Prof. Dimiter Velev
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Dr. Martin Bobak
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Prof. Chao Zhang
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Dr. Razia Sulthana Abdul Kareem
University of Greenwich, UK



Prof. Ming Chen
Zhejiang University, China



Prof. Donghoon Shin
Daegu Gyeongbuk Institute of Science and Technology (DGIST), Republic of Korea

Part IV Oral Presentation

Oral Presentation Guidelines

- The oral presentations include the forms of onsite presentations and online presentations. The online presentations are all pre-recorded video presentations.
- The regular oral presentation is 15 minutes including 2-3 minutes for Q&A; the invited speech is 20 minutes including 2-3 minutes for Q&A.
- For oral presentations, please make the following preparations:
  1) The presentation PowerPoint or PDF file should be formatted with figures and tables included; plain text is not recommended.
  2) Speakers are recommended to bring their presentation data in the form of PPT or PDF file by a USB memory stick and send one copy to the organizing committee as a backup via email fsdm@fsdmconf.org or upload it to the submission system via clicking "More"→ "Upload Oral Files". For those who have not sent a file to the committee or any update needed, please copy it to the laptop in the session room about 15 minutes before the starting time, and make sure it could be normally displayed.
- The pre-recorded videos for regular oral presentations or invited speeches should be uploaded to submission system **before November 10, 2026** in the format of **.mp4** with a volume less than 300MB and time duration should be 10-15 mins. Please keep the speaker's face visible throughout the video, and speak in a clear, loud voice.
- The PPT file for oral presentation could be designed as you like with requirements as below:
  - ✓ The conference logo should be added to each PPT slide (a ppt sample can be downloaded via "Files Download" at FSDM 2026 homepage)
  - ✓ Paper ID, title, presenter and affiliation information should be indicated in the first slide
- All speakers should inform the Session Chair (before the start of your Session) that you are in the meeting room.
- At the conclusion of each oral session, the session chair will formally present a signed and stamped oral presentation certificate to each presenter and take individual photos with them. Following this, the session chair will join all presenters for a group photo.

Best Oral Presentation Awards

Selection Criteria

The best presentation will be selected based on the following items:

- ✓ Research Quality
- ✓ Presentation Performance
- ✓ Language Presentation
- ✓ Interaction with Listeners
- ✓ PowerPoint Design
- ✓ Effective Communications

Selection Procedure

- ➢ An assessment sheet will be delivered to listeners before the session.
- ➢ Write the numbers of two candidates for best presentations and submit the filled assessment sheet (with the listener's name and signature) to the Session Chair before the session termination.
- ➢ The Session Chair will count the votes for each presentation and name the winner based on the maximal number of votes. The Session Chair has three votes but can use only one in favor of his/her own presentation (if any). To avoid any conflict of interest, only registered listeners are entitled to vote.
- ➢ The Best Oral Presentation Awards are open to contributed regular oral presentations only.
- ➢ **Five Best Oral Presentation Awards** from five oral sessions will be announced on FSDM 2026 website.

Nature of the Award

- ➢ This award consists of free registration for the next conference FSDM 2027 and a certificate.

Assessment Sheet Sample

FSDM 2026 Oral Presentation Assessment

Dear participants,

After carefully listening to the presentations of this session, please kindly recommend two excellent Oral Presentations with reference to the following evaluation criteria.

The Session Chair will count the votes from each presentation and select One Best Oral Presentation in this session. If there is a tie, the Session Chair will make the final decision.

The winner will be announced at the official website after the conference.

You can refer to the following Criteria:

Items	Assessment
Content	Right, Logical, Original, Well-Structured
Language	Standard, Clear, Fluent, Natural
Performance	Spirited Appearance, Dress Appropriately, Behaves Naturally
PPT	Layout, Structure, Typeset, Animation, Multimedia
Reaction	Build a Good Atmosphere, Speech Time Control Properly

Please write down paper ID and give reasons for your recommendation for two candidates:

Paper ID	Reasons

Evaluated by: _____ (Paper ID: _____)

Note: When the session finished, please fill it out and give it to the Session Chair so that the Best Oral Presentations in this session can be selected.

Part V Conference Venue

City University of Macau
Address: Avenida Padre Tomás Pereira Taipa, Macau
Website: https://cityu.edu.mo/en/





Access to Venue

1. From Macao Airport (澳門國際機場)
• About 4 KM
• Approx. 8 - 10 minutes by taxi
• Approx. 40 minutes by bus MT1, and get off at T300 Esparteiro/Lou Lim Ieok (史伯泰/盧廉若站)

2. From Border Gate Terminal (澳門關閘)（注：大陸方向為拱北口岸）
• About 10 KM
• Approx. 15 - 20 minutes by taxi
• Approx. 45 - 60 minutes by bus No. 25, and get off at T300 Esparteiro/Lou Lim Ieok (史伯泰/盧廉若站)

3. From Hong Kong- Zhuhai-Macao Bridge Frontier Port (港珠澳大橋澳門口岸)
• About 16 KM
• Approx. 25 minutes by taxi
• Approx. 45 - 60 minutes. Take bus No.102X, and get off at Chun Lai Garden (泉澧花園)

4. From New Hengqin Port (橫琴口岸澳門口岸)
• About 9 KM
• Approx. 20 minutes by taxi
• Approx. 30 - 40 minutes. Take bus No. 101X, and get off at T300 Esparteiro/Lou Lim Ieok (史伯泰/盧廉若站)

Notes: The campus is located on a hill. If you alight at Esparteiro/Lou Lim Ieok, please allow 10-15 minutes for the uphill walk. Comfortable footwear is recommended.

Part VI Field Investigation

Monday, November 23, 2026 | Time: 09:00-16:00	
09:00	**Depart from City University of Macau** Gather at: Rotunda Dr. Carlos A. C. P. D'Assumpção Bus Stop T307 (alongside the uphill road to CityU main gate) 宋玉生博士圓形地巴士站 T307（城大校門上坡旁）
09:00-10:00	**Ruins of St. Paul**
10:00-11:00	**Maritime Museum**
11:00-12:00	**A-Ma Temple**
12:00-16:00	**Free time at The Venetian Macao**

Note: This itinerary is subject to changes based on operational needs and the tour guide's instructions.

Tips:

1) Participant information is required for registration.

2) Please present your Tour Ticket when getting on the bus. Please take care of your Tour Ticket as it is the only access to the tour.

3) Please follow the arrangement of the guide. Participants are not allowed to leave the team without permission.



Ruins of St. Paul



A-Ma Temple



Maritime Museum



The Venetian Macao

Part VII Acknowledgements

On behalf of the FSDM 2026 Organizing Committee, we would like to take this opportunity to express our sincere gratitude to our participants. Without their support and contributions, we would not be able to hold the conference successfully. We would also like to express our acknowledgements to the Technical Program Committee (TPC) members who have given their professional guidance and valuable advice as reviewers. Below are the lists of the Organizing Committee and TPC members. For those who contribute to the success of the conference organization without listing the names here, such as anonymous reviewers and experts, we would love to say thanks as well.

FSDM 2026 Organizing Committee

Technical Program Committee (TPC) Co-Chairs

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Prof. Dr. Vilem Novak, Institute for Research and Applications of Fuzzy Modeling, University of Ostrava, Czech Republic

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Part VIII Invitation Letter to FSDM 2027

As FSDM 2026 draws to a close, we are excited to announce that the 13th International Conference on Fuzzy Systems and Data Mining (FSDM 2027) is scheduled to be held at Huaqiao University (Xiamen campus), Xiamen, China from November 12 to 15, 2027. Continuing its legacy as a premier academic platform, it will gather global experts to share cutting-edge findings in fuzzy systems, data mining, and their interdisciplinary frontiers. Save the date! We look forward to welcoming you to Xiamen for inspiring exchanges and collaborations. For updates, stay tuned to our official channels.

Conference Name: The 13th International Conference on Fuzzy Systems and Data Mining (FSDM 2027)
Date: November 12-15, 2027
Venue: Huaqiao University (Xiamen campus), Xiamen, China
Estimated Number of Participants: 110 people
Expected Regional Distribution of Participants: Bulgaria, Thailand, Germany, South Korea, China, Italy, Mexico, Slovakia, Czech Republic, Canada, UK, USA, etc.

Brief Program:

Friday, November 12, 2027
Registration
Saturday, November 13, 2027
Opening Ceremony, Keynote & Invited Speeches, Poster & Oral Presentations, Welcome Banquet
Sunday, November 14, 2027
Invited Speeches, Oral Presentations and Awarding & Closing Ceremony
Monday, November 15, 2027
Field Investigation

