

The Eighteenth International Conference on Fuzzy Set Theory and Applications



FSTA 2026

Liptovský Ján, Slovak Republic

January 25 – 30, 2026

Programme



UNIVERSITY OF OSTRAVA
INSTITUTE FOR RESEARCH
AND APPLICATIONS
OF FUZZY MODELING



SLOVENSKÁ TECHNICKÁ
UNIVERZITA V BRATISLAVE

Organized by

SIPKES s.r.o.

jointly with

Institute for Research and Applications of Fuzzy Modeling,
University of Ostrava



UNIVERSITY OF OSTRAVA
INSTITUTE FOR RESEARCH
AND APPLICATIONS
OF FUZZY MODELING

Department of Mathematics and Descriptive Geometry,
Faculty of Civil Engineering,
Slovak University of Technology in Bratislava

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UNIVERZITA V BRATISLAVE

in co-operation with

Armed Forces Academy of General Milan Rastislav Štefánik



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Conference venue

About the Liptov region

Liptov is a historical and geographical region in central Slovakia with historical and cultural centres in the cities Liptovský Mikuláš, Ružomberok, and Liptovský Hrádok. The whole region is surrounded by the highest mountains in Slovakia, including High Tatras, West Tatras, Low Tatras, or Great Fatra. Tourists may enjoy the richness of nature provided by two national parks, namely the Tatra National Park and the Low Tatra National Park. The beautiful nature offers a lot – mountains, caves, animals, and plants; tourists usually appreciate the splendid ski resort Jasná (closely located to the conference venue) and hot springs spas (e.g. Tatralandia in Liptovský Mikuláš or Bešeňová)

Venue

The venue of the conference – Alexandra Wellness Hotel – lies in the village Liptovský Ján, located 4km from Exit 279 of the main Slovakian Highway D1 (E50).

Bus connections

If you do not intend to come by car, the organizers will assist you in getting to the hotel and getting back from the hotel to the train station in Liptovský Mikuláš by organizing buses at the following scheduled departure times:

Sunday, January 25 (Liptovský Mikuláš train station – Alexandra Wellness Hotel) departures:

14:00, 15:50, 17:00, 18:40, 20:00, 21:00

Friday, January 30 (Alexandra Wellness Hotel – Liptovský Mikuláš train station) departures:

8:55, 10:55, 12:55, 13:55

Apart from the free buses by the organizers, participants may use the standard buses operating every day. **Their schedule in PDF is linked on the conference web.**

Hotel services

Alexandra Wellness Hotel as the conference hotel does not provide only accommodation, catering, and conference rooms' services. It is here to make you feel like in paradise. It offers the following services:

- unlimited access to the swimming pool, one free access to the wellness centre per day,
- free wifi, free access to the fitness centre, free table tennis,
- bowling tracks for rent (20% discount for hotel guests)
- rent of an indoor sports hall.

Enjoy your stay as much as you can.

General Information

Registration

The registration desk will be open in the conference hotel during the following hours:

- Sunday, January 25, 16:30 – 19:30,
- Monday, January 26, 8:30 – 9:00.

If your arrival does not allow you to approach the registration desk in the hours given above, feel free to approach the organizer, your registration will be done upon your request individually.

Lectures

Each lecture room will be equipped with a computer with Acrobat Reader and PowerPoint, a data projector, a canvas, and a laser pointer. Each lecture has a determined time slot for 20 minutes including the discussion. We kindly ask the speakers to:

- come to the lecture room in time to upload the slides to the provided computer before the beginning of the session and to avoid slowing down the schedule of the session;
- to leave some time for the discussion (if the talk will not be finished in time, the chairman cannot allow the discussion);
- to avoid risking problems with PowerPoint presentations and to consider converting them to PDF.

The only official language of the conference is English.

Catering

Participants will be provided with the full board catering, namely with dinners starting on Sunday, January 25, and ending with the gala dinner on Thursday, January 29, and with lunches starting on Monday, January 26, and ending with the lunch on Friday, January 30. Accommodation automatically includes a breakfast buffet. The lectures will be separated by appropriately scheduled coffee breaks with some drinks and small refreshments.

Health

The emergency phone number call ambulance is the standard European 112. The same number can be used for calling to police or a fire department. We hope that the participants will not have any reason to use them.

Currency

Slovakia uses EUR currency. (The current exchange rate to USD is: 1.00 USD = 0.85 EUR.)

Electricity

The standard electrical voltage in Slovakia is 230 volts AC, 50Hz. The electrical sockets are identical to the standard European sockets.

Telephone

The international access code for Slovakia is +421. **Please silence your mobile phone during all conference sessions.**

Weather

The weather in Slovakian mountains in January can differ a lot and the temperatures may range from low positive degrees Celsius to rare extremes below -20°C. In general, be ready for classical winter mountain weather and you will not be surprised.

Time-zone

Slovakia uses the Central European Time (CET) which is the Greenwich Mean Time (GTM) plus 1 hour.

Social events

Wednesday Excursions (13:20 – 17:30)

FSTA traditionally offers excursions to its participants. We offer the conference participants a unique opportunity to get to know the beauty and the history of Slovakia. Buses will be provided and entrance fees are included. The only thing we need is that each interested participant registers by signing on particular sheets placed on the board at the conference site.

Excursion no. 1 - Demänovská Cave of Liberty

BUS departure 13:20

Demänovská Cave of Liberty is a karst cave in Low Tatras in Slovakia. It is the most visited cave in Slovakia. Of the total length of 8126 metres, 1800 metres are open to the public. The cave is richly decorated with many stalactites, stalagmites, and stalagmites. It contains large domes, the largest one called the Great Dome with a height of 41m, a length of 75m, and a width of 35m. The cave was renovated in 2023 and offers visitors even greater comfort.



Excursion no. 2 – Open-air museum of Liptov Village in Pribylina

BUS departure 13:30

The Museum of Liptov Village in Pribylina presents a settlement disposition that was characteristic of the Liptov region. The houses come from several Liptov villages, mainly from the area now flooded with water from the Liptovská Mara dam. The houses are copies of original buildings with numerous original elements. You can see folk wooden architecture and two exceptional medieval stone structures: the early Gothic church of the Holy Virgin from Liptovská Mara (a village that gave its name to the dam) and the Gothic-Renaissance mansion from Parížovce. You can see the way of life in the late 19th and early 20th centuries. Each house is labeled with a description in Slovak, English, German, and Polish. The staff of the Museum will gladly answer your possible questions.



Wednesday Concert (20:30 – 21:30)

It is again a tradition specific for FSTA that Wednesday evening is reserved for the concert consisting of participants' performances. Something you cannot miss, something you have to see, something you have to listen to.

Thursday Football match (16:30 – 17:30)

When we – the organizers – decided to change hotel and contracted the Alexandra Wellness Hotel which offers a rich sports background including an indoor sports hall, we found it suitable for an attempt to set up a new tradition: a football match between organizers and participants. But we surely want to go on in this tradition and build two teams that will fight for this glorious victory. **We ask all participants to come to support both teams in building the tradition of friendly matches with joy, respect, and fun. Cheerleaders are especially welcome.**

Thursday Gala dinner (from 19:00)

Gala dinner is traditionally the main social event of any conference. The one at FSTA provides a lot, the award ceremony, rich food buffet, but mainly, fabulous local folklore “dulcimer” band performance that lasts hours and hours and provides an amazing opportunity for dancing.

FSTA 2026 programme

SUNDAY, JANUARY 25

16:30 - 19:30	REGISTRATION	Foyer
19:30 - 21:00	DINNER	Restaurant

MONDAY, JANUARY 26

8:30 - 9:00	REGISTRATION	Foyer
9:00 - 9:10	OPENING CEREMONY	Congress

INVITED TALK Congress

9:10 - 10:10	Speaker: VOMLEL Jiří	
	Title: <i>Fuzzy Transforms Meet Bayesian Networks in Sociological Data Analysis</i>	
10:10 - 10:40	COFFEE BREAK	Congress Foyer

Session 1 Room A

10:40 - 11:00	Author(s): ARELLANO Joaquin and BUSTINCE Humberto and FERNANDEZ Francisco Javier and MARCO-DETCART Cedric and DIMURO Graçaliz and RODRIGUEZ-MARTINEZ Iosu and CRUZ Anderson and BEDREGAL Benjamín	
	Title: <i>d-Choquet Inspired Functions and Their Extension for Adaptive Image Aggregation and Pooling</i>	
11:00 - 11:20	Author(s): DIMURO Graçaliz and DALMAZO Bruno and ABREU Quevedo and CONDORI Karina and AYRES Denner and LUCCA Giancarlo and BEDREGAL Benjamín and ZANOTELLI Rosana and ASMUS Tiago and BUSTINCE Humberto	
	Title: <i>Capturing Temporal Interrelationships Among Data by Choquet-like integrals: Application to Network Traffic Forecasting</i>	
11:20 - 11:40	Author(s): HUTNÍK Ondrej and KLEINOVÁ Miriam and PUŠKÁROVÁ Natália	
	Title: <i>Incorporating temporal aspects into the Choquet–Stieltjes integral</i>	
11:40 - 12:00	Author(s): JÓZEPIAK Tomasz and KAŁUSZKA Marek and OKOLEWSKI Andrzej	
	Title: <i>Defining variance functional in terms of the Choquet integral</i>	

Session 2 Room B

10:40 - 11:00	Author(s): OSTROWSKI Marcin and KACZMAREK-MAJER Katarzyna and HRYNIEWICZ Olgierd	
	Title: <i>Measuring the Temporal Stability of Fuzzy Linguistic Summaries about Time Series with Drifts</i>	
11:00 - 11:20	Author(s): MIŚ Katarzyna and KACZMAREK-MAJER Katarzyna and BACZYŃSKI Michał	
	Title: <i>Qualitative Criteria for Fuzzy Linguistic Summaries with Absolute Linguistic Expressions</i>	
11:20 - 11:40	Author(s): KACZMAREK-MAJER Katarzyna and DAŇKOVÁ Martina	
	Title: <i>On the Dissimilarity of Fuzzy Information Granules</i>	
11:40 - 12:00	Author(s): HUDEC Miroslav and ŠOLTÉS Erik	
	Title: <i>Linguistic summaries in weights adjustments and criteria reduction for evaluation and multicriteria decision making</i>	

Session 3**Room C**

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- 10:40 - 11:00 **Author(s):** MIHAILOVS Valerijs
Title: *A Fuzzy Logic Approach to Soft Classification*
- 11:00 - 11:20 **Author(s):** BURDA Michal
Title: *Discovering Fuzzy and Statistical Patterns in Data: The nuggets R Package*
- 11:20 - 11:40 **Author(s):** GURIA Soumita and DUTTA Bapi and GUHA Debashree
Title: *An Overlap Function-Induced Interactive Feature-Weighting Improved Oversampling Method for Imbalanced and High-dimensional Data Classification*
- 11:40 - 12:00 **Author(s):** ALHAJJ HASSAN Ishrak
Title: *Iterated Correlation Under Uncertainty: A Three-Layer Predictive Model with Fuzzy Upper Bounds*

12:15 - 13:30 **LUNCH**

Restaurant

16:10 - 16:40 **COFFEE BREAK**

**Congress
Foyer****Session 4****Room A**

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- 16:40 - 17:00 **Author(s):** BORZOVÁ Jana and KLEINOVÁ Miriam
Title: *Exploring the upper n -Sugeno integral and its role in scientometrics*
- 17:00 - 17:20 **Author(s):** ĎUBEK Matúš and ŠELIGA Adam
Title: *Modifying Decomposition Integrals Using Inequalities*
- 17:20 - 17:40 **Author(s):** MESIAR Radko and KOUCHAKINEJAD Fateme
Title: *Time-dependent fuzzy measures*
- 17:40 - 18:00 **Author(s):** TAKÁCS Márta and ŠTAJNER-PAPUGA Ivana and SÖRFŐZŐ SZÜGYI Judit
Title: *The Application of the Choquet integral in Fuzzy Cognitive Maps*

Session 5**Room B**

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- 16:40 - 17:00 **Author(s):** PASEKA Jan
Title: *Unsharp residuation in posets*
- 17:00 - 17:20 **Author(s):** ŁOMPIEŚ Jakub and BOCZEK Michał and KALUSZKA Marek
Title: *Admissible pairs of quasi-linear means and related families*
- 17:20 - 17:40 **Author(s):** ŠTAJNER-PAPUGA Ivana and TEPAVČEVIĆ Andreja
Title: *On aggregation of Ω -groups and fuzzy subgroups*
- 17:40 - 18:00 **Author(s):** HOSKOVA-MAYEROVA Sarka and AL TAHAN Madeleine
Title: *Fuzzy Extensions of Antiideal Structures in Semigroups*

Session 6**Room C**

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- 16:40 - 17:00 **Author(s):** PHAM Thi Minh Tam and PERFILIEVA Irina
Title: *Fuzzy transform for operational matrices in fractional equations*
- 17:00 - 17:20 **Author(s):** CROITORU Anca and IOSIF Alina and SAMBUCINI Anna Rita
Title: *A note on some inequalities for Birkhoff weak integrable functions*
- 17:20 - 17:40 **Author(s):** CISKO Miloslav and KISELÁK Jozef
Title: *Differential Equations with Respect to Fuzzy Measures: Basic Concept and Modeling*

19:00 - 20:30

DINNER

Restaurant

TUESDAY, JANUARY 27

INVITED TALK

Congress

9:10 - 10:10 **Speaker:** DE BAETS Bernard
Title: *Law & Order: New Kids on the Block*

10:10 - 10:40 **COFFEE BREAK**

Congress
Foyer

Session 7

Room A

10:40 - 11:00 **Author(s):** LIVENS Jan and DE BAETS Bernard
Title: *Operations on fuzzy variables with constraint-based interactivity*

11:00 - 11:20 **Author(s):** ŠTEVULIÁKOVÁ Petra and ALIJANI Zahra
Title: *Relation of Complete Correlation and Its Implication on Interval Operations*

11:20 - 11:40 **Author(s):** JELINSKA Jelizaveta and GRIGORENKO Olga
Title: *A Fuzzy Relation Aggregation Approach to Weighting Experts' Opinions*

11:40 - 12:00 **Author(s):** ŠPIRKOVÁ Jana
Title: *Towards a Solver-Free Best-Worst Method*

Session 8

Room B

10:40 - 11:00 **Author(s):** CAO Nhung and HOLČAPEK Michal and VALÁŠEK Radek
Title: *On Inference Mechanisms of Fuzzy-Probabilistic Inference Systems*

11:00 - 11:20 **Author(s):** CAO Nhung and HOLČAPEK Michal and VALÁŠEK Radek
Title: *On Data-Driven Fuzzy Partition in the Fuzzy-Probabilistic Inference System Framework*

11:20 - 11:40 **Author(s):** GRZEGORZEWSKI Przemysław and KWIECIEŃ Jan
Title: *Asymptotic methods in statistic with imprecise data*

11:40 - 12:00 **Author(s):** CAO Nhung and HOLČAPEK Michal and VALÁŠEK Radek
Title: *Fuzzy-Probabilistic Inference Systems Based on Piecewise Linear Weighted Quantiles*

Session 9

Room C

10:40 - 11:00 **Author(s):** MOLEK Vojtech and ALIJANI Zahra
Title: *Few-shot learning in industrial applications*

11:00 - 11:20 **Author(s):** AGUIRRE-ERASO Javier and GONZALEZ-GARCIA Xabier and LOPEZ-MOLINA Carlos
Title: *Uncertainty-Aware Machine Learning: A Case Study on EEG Data*

11:20 - 11:40 **Author(s):** HYNER Petr and MRÓGALA Jan and ADAMCZYK David and HŮLA Jan
Title: *Predicting Subgoals in Ricochet Robots with a Graph Neural Network*

11:40 - 12:00 **Author(s):** HYNER Petr and DUŠEK František and ADAMCZYK David and HŮLA Jan
Title: *Large Language Models in SAT Reasoning*

WEDNESDAY, JANUARY 28

INVITED TALK

Congress

9:10 - 10:10 **Speaker:** BUSTINCE Humberto
Title: *From Choquet-inspired to Choquet-functional integrals*

10:10 - 10:40 **COFFEE BREAK**

Congress
Foyer

Session 13

Room A

10:40 - 11:00 **Author(s):** HALAŠ Radomír and MESIAR Radko and PÓCS Jozef and STUPŇANOVÁ Andrea
Title: *Representing Ordered Functional Weighted Averaging Operators*

11:00 - 11:20 **Author(s):** FERRERO-JAURRIETA Mikel and HORANSKA Ľubomira and TAKAC Zdenko and BUSTINCE Humberto
Title: *Some ideas about extending IOWA operators to multivariate domain*

11:20 - 11:40 **Author(s):** INDURAIN-IBERO Alfonso and BEDREGAL Benjamín and FERRERO-JAURRIETA Mikel and FERNÁNDEZ Javier and BUSTINCE Huberto
Title: *Missing data imputations through a new family of aggregation functions*

11:40 - 12:00 **Author(s):** HURAJOVÁ Kristína and HUTNÍK Ondrej
Title: *Aggregation operators and algebras for musical data fusion*

Session 14

Room B

10:40 - 11:00 **Author(s):** ZEMÁNKOVÁ Andrea and HYČKO Marek
Title: *A note on the associativity of functions induced by pair-orders*

11:00 - 11:20 **Author(s):** KUPKA Jiří
Title: *Fuzzy entropy and topological entropy of fuzzy dynamical systems*

11:20 - 11:40 **Author(s):** DAS Birojit
Title: *Continuity and Irresoluteness through operations between fuzzy bitopological spaces*

11:40 - 12:00 **Author(s):** VARFOLOMEJEVA Ksenija and ULJANE Ingrida
Title: *On the Behaviour of Morphological Operators under Morphisms in the Category of L-Fuzzy Sets with a Structuring Element*

Session 15

Room C

10:40 - 11:00 **Author(s):** GONZALEZ-GARCIA Xabier and SALE Yusuf and DESTERCCKE Sébastien and BUSTINCE Humberto and HÜLLERMEIER Eyke
Title: *Fuzzy Measures and Choquet Integral: A Framework for Uncertainty Quantification in Machine Learning*

11:00 - 11:20 **Author(s):** DAŇKOVÁ Martina and ŠUSTEK Jan
Title: *A General Framework for Multiplets Selection: Algorithmization and Complexity Analysis*

11:20 - 11:40 **Author(s):** GUPTA Pragya and GUHA Debashree and CHAKRABORTY Debjani
Title: *Weighted Evidential Divergence Measure based Method for Multi-View Information Fusion*

11:40 - 12:00 **Author(s):** SINGH Shivani and MONDAL Sourov and NIEVES Juan Carlos and TORRA Vicenç
Title: *Evaluation of Machine-Learning Models in Polymer Chemistry with Prediction of Not Reported Measurements*

12:00 - 13:00 **LUNCH**

Restaurant

13:20 - 17:30 **EXCURSIONS**

19:00 - 20:00 **DINNER**

Restaurant

20:30 - 21:30 **CONCERT**

THURSDAY, JANUARY 29

INVITED TALK

Congress

9:10 - 10:10 **Speaker:** RICO Agnès
Title: *Integral Explanation*

10:10 - 10:40 **COFFEE BREAK**

Congress
Foyer

Session 16

Room A

10:40 - 11:00 **Author(s):** OJEDA-HERNANDEZ Manuel and LÓPEZ-RODRÍGUEZ Domingo
Title: *Direct-optimal systems of attribute implications in fuzzy Formal Concept Analysis*

11:00 - 11:20 **Author(s):** ANTONI Lubomír and ELIAŠ Peter and GUNIŠ Ján and KOTLÁROVÁ Dominika and KRAJČI Stanislav and KRÍDLO Ondrej and ŠNAJDER Lubomír and VOŽENÍLEK Vít
Title: *Distance functions between closure systems and their connections with fuzzy formal concept analysis*

11:20 - 11:40 **Author(s):** KRÍDLO Ondrej and LÓPEZ-RODRÍGUEZ Domingo and OJEDA-ACIEGO Manuel and REFORMAT Marek Z.
Title: *Generating Interpretable and User-elicited Fuzzy RDF Properties*

11:40 - 12:00 **Author(s):** ŻYWICA Patryk and PANKOWSKA Anna
Title: *Embedding Similarity with Fuzzy Uncertainty in Retrieval Augmented Generation*

Session 17

Room B

10:40 - 11:00 **Author(s):** VLČEK Ivan and TURČANÍK Michal and PAPČO Martin
Title: On modifications of clustering algorithms based on fusion methods

11:00 - 11:20 **Author(s):** PEREZ-DEL-NOTARIO Inaki and BUSTINCE Humberto and ORIA Pedro
Title: Probabilistic Short-Term Rain Forecasting with Radar Images

11:20 - 11:40 **Author(s):** ALIJANI Zahra and DAŇKOVÁ Martina
Title: A General Framework for Context-Aware Fuzzification of Four Ordered Categories: A Case Study on BMI Categories

11:40 - 12:00 **Author(s):** KÄLIN Remo and PORTMANN Edy
Title: Towards Responsible Time Series Forecasting

Session 18

Room C

10:40 - 11:00 **Author(s):** FIALA Karel and MURINOVÁ Petra
Title: Properties of Graded Peterson's Square of Opposition as Immediate Inferences

11:00 - 11:20 **Author(s):** CERMAN Zbyněk
Title: The maximal set of non-isomorphic lattices represented by Δ -incidence matrices preserving $\{0, 1\}$ -aggregation

11:20 - 11:40 **Author(s):** KALAFUT Juraj
Title: Smooth associative idempotent functions on finite lattices

11:40 - 12:00 **Author(s):** HAKAMI Khalil H.
Title: Modeling and Application of Quadri-Polar Fuzzy Fantastic Ideals in BCI-Algebras Using the TOPSIS Method

12:15 - 13:30 **LUNCH**

Restaurant

Session 19**Room A**

- 13:40 - 14:00 **Author(s):** BULA Inese
Title: *Uncertainty in Idea Management with Elements of Game Theory*
- 14:00 - 14:20 **Author(s):** HOUŠKOVÁ Kamila and NAVARA Mirko
Title: *Independence of fuzzy events*
- 14:20 - 14:40 **Author(s):** HOUŠKOVÁ Kamila and NAVARA Mirko
Title: *Independence of fuzzy observables*
- 14:40 - 15:00 **Author(s):** SLOVINSKÁ Mária and KISELÁK Jozef and ONTKOVIČOVÁ Zuzana and STEHLÍK Milan
Title: *Alternative Statistical Moments under a Choquet Integral Framework*

Session 20**Room B**

- 13:40 - 14:00 **Author(s):** ASMUSS Svetlana and GRIGORENKO Olga and GROMOV Dmitry
Title: *On Fuzzy Approach to the Concept of Value of Information in Optimal Control*
- 14:00 - 14:20 **Author(s):** PERFILIEVA Irina
Title: *From Fuzzy Partitions to Reproducing Kernel Hilbert Spaces*
- 14:20 - 14:40 **Author(s):** MIHAILOVIĆ Biljana
Title: *Inner inverses and solutions of interval linear systems*

15:00 - 15:30 **COFFEE BREAK****Congress
Foyer**16:30 - 17:30 **FOOTBALL MATCH**19:00 - 22:00 **GALA DINNER****FRIDAY, JANUARY 30****INVITED TALK****Congress**

- 9:30 - 10:30 **Speaker:** FLAMINIO Tommaso
Title: *Fuzzy Logic and Probability Theory are Cooperative (Rather than Complementary or Competitive)*

10:30 - 11:00 **COFFEE BREAK****Congress
Foyer****INVITED TALK****Congress**

- 11:00 - 12:00 **Speaker:** BACZYŃSKI Michał
Title: *New Horizons in Fuzzy Logic Connectives: Structural Theory and Recent Advances*

12:00 - 12:15 **CLOSING CEREMONY****Congress**12:15 - 13:30 **LUNCH****Restaurant**