

# The Seventeenth International Conference on Fuzzy Set Theory and Applications



## FSTA 2024

Liptovský Ján, Slovak Republic

January 28 – February 2, 2024

# 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



in co-operation with

Armed Forces Academy of General Milan Rastislav Štefánik



and sponsored by



# 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 28 (Liptovský Mikuláš train station – Alexandra Wellness Hotel) departures:

**15:00, 17:00, 19:00, 21:00**

Friday, February 2 (Alexandra Wellness Hotel – Liptovský Mikuláš train station) departures:

**9:00, 10:45, 13:00**

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 28, 16:30 – 19:30,
- Monday, January 29, 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 28, and ending with the gala dinner on Thursday, February 1, and with lunches starting on Monday, January 29, and ending with the lunch on Friday, February 2. 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 = 0.90 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 2024 programme

## SUNDAY, JANUARY 28

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

## MONDAY, JANUARY 29

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

### INVITED TALK Congress

9:10 - 10:10	<b>Speaker:</b> Katarzyna KACZMAREK-MAJER	
	<b>Title:</b> <i>Linguistic Summaries with Semi-Supervised Fuzzy Clustering</i>	
10:10 - 10:40	COFFEE BREAK	Congress Foyer

### Session 1 Room A

10:40 - 11:00	<b>Author(s):</b> DVOŘÁK Antonín and ŠTĚPNIČKA Martin	
	<b>Title:</b> <i>On Properties of Mamdani-Assilian Fuzzy Rules – an Open Problem Posed</i>	
11:00 - 11:20	<b>Author(s):</b> URÍO-LARREA Asier, PEREIRA Graçaliz, FERNÁNDEZ Javier and BUSTINCE Humberto	
	<b>Title:</b> <i>Fuzzy Inference System based on rule comparison measure</i>	
11:20 - 11:40	<b>Author(s):</b> GONZALES-GARCIA Xabier, NUÑEZ DO RIO Joan, HORANSKÁ Lubomíra and BUSTINCE-SOLA Humberto	
	<b>Title:</b> <i>Generalized Takagi Sugeno Kang fuzzy inference system on intensity-modulated radiotherapy treatment selection</i>	
11:40 - 12:00	<b>Author(s):</b> ANIS F. G, SYED AHMAD Sharifah Sakinah and OTHMAN Zuraini	
	<b>Title:</b> <i>A Comparison Between FIS and ANFIS on Chaotic Time Series Forecasting for Forestry Management</i>	

### Session 2 Room B

10:40 - 11:00	<b>Author(s):</b> INDURAIN Alfonso, FERRERO-JAURRIETA Mikel, DE MIGUEL Laura, FERNANDEZ Javier and BUSTINCE Humberto	
	<b>Title:</b> <i>Modification of Residual LSTM using a new approach to self-attention based on overlap and grouping functions</i>	
11:00 - 11:20	<b>Author(s):</b> ALMAHASNEH Ruba and KOCZY Laszlo	
	<b>Title:</b> <i>The Extended TOPSIS Method for Dial-a-Ride Problem with Time Window Using Interval-Valued Intuitionistic Fuzzy Sets</i>	
11:20 - 11:40	<b>Author(s):</b> GRZEGORZEWSKI Przemysław	
	<b>Title:</b> <i>Credibility Theory in Statistical Reasoning with Imprecise Data</i>	
11:40 - 12:00	<b>Author(s):</b> SINGH Shivani	
	<b>Title:</b> <i>Rough PDA, Rough CFG and its Application to Healthcare System</i>	

12:15 - 13:30	LUNCH	Restaurant
16:10 - 16:40	COFFEE BREAK	Congress Foyer

**Session 3****Room A**

- 16:40 - 17:00 **Author(s):** HORANSKÁ Lubomíra and MESIAR Radko  
**Title:** *Constructions of aggregation functions based on generalized Möbius transform*
- 17:00 - 17:20 **Author(s):** PAPČO Martin  
**Title:** *On aggregation of multi-valued data*
- 17:20 - 17:40 **Author(s):** BASARIK Stanislav and HALČINOVÁ Lenka  
**Title:** *Some generalizations of the Choquet integral – applied and theoretical*
- 17:40 - 18:00 **Author(s):** JÓZEFIAK Tomasz  
**Title:** *An extension of the Choquet integral for multi-valued data*
- 18:00 - 18:20 **Author(s):** HALAŠ Radomír and PÓCS Jozef  
**Title:** *Sugeno Integral: compatibility and its relation to distributivity*

**Session 4****Room B**

- 16:40 - 17:00 **Author(s):** MIHAILOVS Valerijs  
**Title:** *Fuzzy Equivalence Relations as Similarity Measurement in Hierarchical Clustering Algorithms*
- 17:00 - 17:20 **Author(s):** GRIGORENKO Olga, MIHAILOVS Valerijs and PERFILJEVA Irina  
**Title:** *Fuzzy Distance-based Inequality Relations and Equivalences in Clustering Problems*
- 17:20 - 17:40 **Author(s):** ZEMLITIS Martinš and GRIGORENKO Olga  
**Title:** *Fuzzy Equivalence Based Numerical Algorithm for Solving Multi-objective Linear Programming Problems*
- 17:40 - 18:00 **Author(s):** HUDEC Miroslav, VUČETIĆ Miljan and BARČÁKOVÁ Nina  
**Title:** *Adaptive proximity relation and conformance measure in data evaluation*
- 18:00 - 18:20 **Author(s):** GUPTA Pragya, GUHA Debashree, HAIT Swati Rani, MANDAL Subhamoy and CHAKRABORTY Debjani  
**Title:** *Retinal Vessel Segmentation based on Fuzzy Histogram Feature Enhancement with the Improved Bonferroni mean-based Pre-aggregation Operators*
- 19:00 - 20:30 **DINNER**

**Restaurant****TUESDAY, JANUARY 30****INVITED TALK****Congress**

- 9:10 - 10:10 **Speaker:** Vicenç TORRA  
**Title:** *Fuzzy clustering and fuzzy measures in data privacy*

10:10 - 10:40 **COFFEE BREAK****Congress  
Foyer****Session 5****Room A**

- 10:40 - 11:00 **Author(s):** ÇAYLI Gül Deniz  
**Title:** *Constructing uninorms on bounded lattices via uninorms*
- 11:00 - 11:20 **Author(s):** NAVARA Mirko and POPOVIĆ Alexej  
**Title:** *Approximations using triangular norms*

- 11:20 - 11:40 **Author(s):** HUTNÍK Ondrej and KLEINOVÁ Miriam  
**Title:** *The (maximal) chain as a tool for generalization of the discrete Choquet integral*
- 11:40 - 12:00 **Author(s):** HALČINOVÁ Lenka, HENNELOVÁ Barbora, HUTNÍK Ondrej and SLOVINSKÁ Mária  
**Title:** *On conditional OWA-operators*

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**Session 6** **Room B**

- 10:40 - 11:00 **Author(s):** ALTAHAN Madeleine and HOSKOVÁ-MAYEROVÁ Šárka  
**Title:** *Characterizing a Semigroup by its Fuzzy Interior Antiideals*
- 11:00 - 11:20 **Author(s):** LEKÁR Milan and PASEKA Jan  
**Title:** *A dagger kernel category of complete orthomodular lattices*
- 11:20 - 11:40 **Author(s):** VARFOLOMEJEVA Ksenija and ŠOSTAK Alexander  
**Title:** *Some Remarks on Categories of Fuzzy Morphological Spaces*
- 11:40 - 12:00 **Author(s):** HYČKO Marek  
**Title:** *Counting fuzzy subgroups in  $U_{6n}$*

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

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

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**Session 7** **Room A**

- 16:40 - 17:00 **Author(s):** ŠPIRKOVÁ Jana and FERRERO-JAURRIETA Mikel  
**Title:** *The Global Pension Index in the Context of Multicriteria Decision Making*
- 17:00 - 17:20 **Author(s):** WIECZYNSKI Jonata, SARTORI Joelson, PARODI Maria, SANTOS Helida, LUCCA Giancarlo, BUSTINCE Humberto and DIMURO Graçaliz  
**Title:** *Optimizing Self-Attention through Aggregation Techniques*
- 17:20 - 17:40 **Author(s):** COSTARELLI Danilo and SAMBUCINI Anna Rita  
**Title:** *A fuzzy algorithm for image rescaling and its comparison with classical methods of digital image processing*
- 17:40 - 18:00 **Author(s):** STUPŇANOVÁ Andrea  
**Title:** *Aggregation functions and their association with linear splines*
- 18:00 - 18:20 **Author(s):** DE MIGUEL Laura, MASSANET Sebastia, MIR Arnau and RIERA Juan Vicente  
**Title:** *On aggregation functions based on admissible orders on the sets of discrete fuzzy numbers and discrete Z-numbers*
- 18:20 - 18:40 **Author(s):** DRYGAŚ Paweł, KRÓL Anna  
**Title:** *Some kinds of threshold generated fuzzy implications*

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**Session 8** **Room B**

- 16:40 - 17:00 **Author(s):** OJEDA-HERNANDEZ Manuel, LÓPEZ-RODRÍGUEZ Domingo and MORA Angel  
**Title:** *Close-by-One strategy for computing the fuzzy concept lattice*
- 17:00 - 17:20 **Author(s):** KRÍDLO Ondrej and LÓPEZ-RODRÍGUEZ Domingo and OJEDA-ACIEGO Manuel and REFORMAT Marek  
**Title:** *An FCA-based approach to RDF*
- 17:20 - 17:40 **Author(s):** PERFILIEVA Irina  
**Title:** *From Kolmogorov Superposition Theorem to the Inverse F-Transform Representation*

17:40 - 18:00	<b>Author(s):</b> HOLČAPEK Michal and QUOC Viec Bui
	<b>Title:</b> <i>On approximation of lattice integral transforms</i>
18:00 - 18:20	<b>Author(s):</b> PHAM Tam and PERFILIEVA Irina
	<b>Title:</b> <i>F-transform Utility in the Operational-Matrix Approach to the Nonlinear Volterra Integral Equation</i>
19:00 - 20:30	<b>DINNER</b>

[Restaurant](#)

## WEDNESDAY, JANUARY 31

### Session 9 [Room A](#)

8:50 - 9:10	<b>Author(s):</b> CERMAN Zbyněk
	<b>Title:</b> <i>Transfer-Stable Aggregation Functions: Applications, Challenges, and Emerging Trends</i>
9:10 - 9:30	<b>Author(s):</b> KALINA Martin
	<b>Title:</b> <i>Construction for uninorms on the unit interval from t-subnorms and/or t-superconorms</i>
9:30 - 9:50	<b>Author(s):</b> MESIAROVÁ-ZEMÁNKOVÁ Andrea, MESIAR Radko, SU Yong and WANG Zhudeng
	<b>Title:</b> <i>How to help Cinderella sort the values of idempotent uninorms on bounded lattices</i>
9:50 - 10:10	<b>Author(s):</b> KALAFUT Juraj and MESIAROVÁ-ZEMÁNKOVÁ Andrea
	<b>Title:</b> <i>Clifford ordinal sum yielding a pseudo-uninorm with continuous underlying function</i>

### Session 10 [Room B](#)

8:50 - 9:10	<b>Author(s):</b> NÁNÁSIOVÁ Olga, ČIPKOVÁ Karla and ZÁKOPČAN Michal
	<b>Title:</b> <i>Some aspects of the generalization of probability</i>
9:10 - 9:30	<b>Author(s):</b> MICIĆ Ivana, ĆIRIĆ Miroslav, MATEJIĆ Jelena, STANIMIROVIĆ Stefan and NGUYEN Linh Anh
	<b>Title:</b> <i>Weak bisimulations: Trading the impreciseness for the finiteness</i>
9:30 - 9:50	<b>Author(s):</b> MOŚ Grzegorz
	<b>Title:</b> <i>Similarity Functions and Medoids for Honeycomb-Based Structures</i>
9:50 - 10:10	<b>Author(s):</b> DRAGIĆ Dorde, MIHAILOVIĆ Biljana and NEDOVIĆ Ljubo
	<b>Title:</b> <i>The general algebraic solution of dual fuzzy linear systems</i>

[Congress Foyer](#)

### 10:10 - 10:30 **COFFEE BREAK**

### Session 11 [Room A](#)

10:30 - 10:50	<b>Author(s):</b> MURINOVÁ Petra (join work with FIALA Karel, KACZMAREK-MAJER Katarzyna and RUTKOWSKA Aleksandra)
	<b>Title:</b> <i>Fuzzy Association Rules on Data using Intermediate Quantifiers</i>
10:50 - 11:10	<b>Author(s):</b> DANTAS DE OLIVEIRA Lucas and SUSSNER Peter
	<b>Title:</b> <i>A First Approach Toward Diagnosing Mood Disorders from Incomplete Data By Means of Fuzzy Natural Logic</i>
11:10 - 11:30	<b>Author(s):</b> FIALA Karel and MURINOVÁ Petra
	<b>Title:</b> <i>Conversion in Fuzzy Natural Logic</i>
11:30 - 11:50	<b>Author(s):</b> NOVÁK Vilém and MURINOVÁ Petra
	<b>Title:</b> <i>Generalized Syllogisms with Intermediate Quantifiers "A few" and "Several"</i>

**Session 12****Room B**

10:30 - 10:50 **Author(s):** FERRERO-JAURRIETA Mikel, PAIVA Rui, CRUZ Anderson, INDURAIN Alfonso, TAKÁČ Zdenko, LOPEZ-MOLINA Carlos and BUSTINCE Humberto

**Title:** *Pseudo-grouping functions obtained by the distortion of aggregation functions: an application on text-based Convolutional Neural Networks*

10:50 - 11:10 **Author(s):** RODRIGUEZ-MARTINEZ Iosu, HORANSKÁ Lubomíra, TAKÁČ Zdenko, HERRERA Francisco and BUSTINCE Humberto

**Title:** *Fusion function combination through an extension of penalty-based functions for feature reduction in Convolutional Neural Networks*

11:10 - 11:30 **Author(s):** ADAMCZYK David and HŮLA Jan

**Title:** *Efficient Use of Large Language Models for Analysis of Text Corpora*

11:30 - 11:50 **Author(s):** PEREZ-DEL-NOTARIO Inaki, BUSTINCE Humberto and ORIA Peio

**Title:** *Early Warning of River Overflow Flooding Using AI*

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

**Restaurant**

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

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

**Restaurant**

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

**THURSDAY, FEBRUARY 1****INVITED TALK****Congress**

9:10 - 10:10 **Speaker:** Stefania BOFFA

**Title:** *Intermediate quantifiers and structures of opposition in Fuzzy Formal Concept Analysis*

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

**Congress Foyer****Session 13****Room A**

10:40 - 11:00 **Author(s):** ŠELIGA Adam

**Title:** *A note on the minimax decomposition integrals*

11:00 - 11:20 **Author(s):** PEKALA Barbara, WILBIK Anna, SZKOŁA Jarosław, DYCZKOWSKI Krzysztof and GIL Dorota

**Title:** *Methods of aggregation process in federated learning models*

11:20 - 11:40 **Author(s):** HOUŠKOVÁ Kamila and NAVARA Mirko

**Title:** *Uniqueness of generators is what we need*

11:40 - 12:00 **Author(s):** BORZOVÁ Jana, HALČINOVÁ Lenka and ŠUPINA Jaroslav

**Title:** *Choquet Integral on a Hyperspace*

**Session 14****Room B**

10:40 - 11:00 **Author(s):** GUPTA Diksha

**Title:** *A study on fuzzy planes and its applications in fuzzy plane fitting*

11:00 - 11:20 **Author(s):** BACIGÁL Tomáš

**Title:** *Grid-based computing over joint probability distribution*

- 11:20 - 11:40 **Author(s):** KUPKA Jiří  
**Title:** Interactive computing
- 11:40 - 12:00 **Author(s):** ONTKOVIČOVÁ Zuzana  
**Title:** Differential entropy in the context of fuzzy measures

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

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**Session 15** Room A

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- 13:40 - 14:00 **Author(s):** ŠOSTAK Alexander and ULJANE Ingrida  
**Title:** *On a bipolar extension of L-fuzzy topologies*
- 14:00 - 14:20 **Author(s):** ŠTAJNER-PAPUGA Ivana and TAKAČI Aleksandar  
**Title:** *A note on fuzzy measures in statistical notions*
- 14:20 - 14:40 **Author(s):** KALUGINS Emils and ŠOSTAK Alexander  
**Title:** *Functors in Fuzzy Category Theory*

**Session 16** Room B

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- 13:40 - 14:00 **Author(s):** MIŚ Katarzyna, KACZMAREK-MAJER Katarzyna and BACZYNSKI Michał  
**Title:** *On Some Properties of Fuzzy Linguistic Summaries*
- 14:00 - 14:20 **Author(s):** ANTONI Lubomír, ELIAŠ Peter, GUNIŠ Ján, KOTLÁROVÁ Dominika, KRAJČI Stanislav, KRÍDLO Ondrej and ŠNAJDER Lubomír  
**Title:** *Attribute implications in heterogeneous formal contexts*
- 14:20 - 14:40 **Author(s):** FERNANDEZ-PERALTA Raquel, MASSANET Sebastia, MESIAROVÁ-ZEMÁNKOVÁ Andrea and MIR Arnau  
**Title:** *On the T-powers of 0 in the invariance property on fuzzy implication functions*
- 14:40 - 15:00 **Author(s):** BRUTENIČOVÁ Michaela and JANIŠ Vladimír  
**Title:** *Implicators on some finite lattices*

15:00 - 15:30 **COFFEE BREAK** Congress Foyer

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16:30 - 17:30 **FOOTBALL MATCH**

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19:00 - 22:00 **GALA DINNER**

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**FRIDAY, FEBRUARY 2**

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**INVITED TALK** Congress

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- 9:30 - 10:30 **Speaker:** Zdenko TAKÁČ  
**Title:** Fuzzy Integrals in the Interval-Valued Setting

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

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**INVITED TALK** Congress

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- 11:00 - 12:00 **Speaker:** Laura DE MIGUEL  
**Title:** Generalizations of aggregation functions

12:00 - 12:15 **CLOSING CEREMONY** Congress

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

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