

Program of the  
1<sup>st</sup> International Joint Conference on  
Conceptual Knowledge Structures  
September 9<sup>th</sup> - 13<sup>th</sup>, 2024. Cádiz, Spain



<b>MONDAY 9<sup>th</sup></b>	
<b>Location: Aulario “La Bomba” (Building 1812)</b>	
9:00	Open Registration Desk
9:30–10:00	Inauguration
10:00–13:30	<b>Tutorials</b>
10:00–11:10	<i>Graph Drawing and its Applications in Formal Concept Analysis</i> Dominik Dürschnabel
11:10–12:00	<i>FCA Tools Tutorial @ CONCEPTS 2024. Part 1</i> Tom Hanika
12:00–12:20	Coffee break
12:20–13:20	<i>FCA Tools Tutorial @ CONCEPTS 2024. Part 2</i> Tom Hanika
13:20–15:20	Lunch
15:20–17:00	<b>Workshop CKS</b>
	<i>Applying Concept Discovery to Fake News Detection</i> Juan Luis Castro Peña
	<i>Triadic relation in RCA</i> Randa C. Bendjeddou, Giacomo Kahn, Aicha S. Seklouli, Tao Wang
	<i>Exploratorium of Space-Time Theories: Int. Vis. of Conceptual Networks in Physical Theories</i> Mariana Espinosa Aldama
	<i>Knowledge Acquisition for Computational Argumentation: A plant breeding use case</i> Andreas Xydis, Elizabeth I. Sklar
	<i>On Exploratory Data Analysis Affordances of FCA and Related Techniques</i> Francisco J. Valverde-Albacete, Carmen Peláez-Moreno
20:30	<b>Welcome reception</b>

<b>TUESDAY 10<sup>th</sup></b>	
<b>Location: Aulario “La Bomba” (Building 1812)</b>	
9:00–9:50	<b>Keynote Speaker: M. Eugenia Cornejo</b> Title: Multi-adjoint Formal Concept Analysis. Theory and Applications Chairperson: Manuel Ojeda-Aciego
9:50–10:50	<b>Session 1</b> Chairperson: Inmaculada P. Cabrera
	<i>Sub-directly irreducible and semi-simple double Boolean algebras</i> Leonard Kwuida, Etienne Romuald Temgoua Alomo
	<i>The Birkhoff completion of finite lattices</i> Mohammad Abdulla, Johannes Hirth, Gerd Stumme
	<i>Arrow Relations in Lattices of Integer Partitions</i> Asma’a Almazaydeh, Mike Behrisch, Edith Vargas-García, Andreas Wachtel
10:50–11:10	Coffee break
11:10–13:10	<b>Session 2</b> Chairperson: Gerd Stumme
	<i>Conceptual Knowledge Modelling for Human-AI Teaming in Data-Frugal Industrial Environments</i> Vedran Galetic, Dylan Sheldon, Alistair Nottle
	<i>Handling Knowledge over Moving Object Trajectories using Formal Concept Analysis</i> Rouaa Wannous, Salah Eddine Boukhetta, Cécile Vincent
	<i>FCAvizIR: Exploring Relational Data Set’s Implications using Metrics and Topics</i> Lola Musslin, Alexandre Bazin, Marianne Huchard, Pierre Martin, Pascal Poncelet, Vincent Raveneau, Arnaud Sallaberry
	<i>Realizability of Rectangular Euler Diagrams</i> Dominik Dürschnabel, Uta Priss
	<i>Spanning Concept Trees: Algorithms and Interaction</i> Tim Pattison
	<i>A Repository for Formal Contexts</i> Tom Hanika, Robert Jäschke
13:10–15:15	Lunch

15:15–16:00	<b>Workshop LBCS.</b> <b>Keynote Speaker WLBCS - Peter Eklund</b> Title: Conceptual Knowledge and Large Language Models Chairperson: L'ubomír Antoni
16:00–17:45	<b>Workshop LBCS</b>
	<i>Obtaining the necessary concepts in a partial formal context</i> F. Pérez, C. Bejines, D. López-Rodríguez, M. Ojeda-Hernández
	<i>Formal Concept Analysis and Attribute Implications for Electricity Consumption</i> V. Pristaš, M. Gowdru Shridhara, N. Fedurcová, D. Pillárová, R. Marek Rak, L. Antoni, O. Krídlo, S. Krajši, G. Semaniin
	<i>Concept Lattices and Attribute Implications for Patient Outcomes after Cardiac Arrest</i> D. Pillárová, N. Fedurcová, R. Marek Rak, V. Pristaš, M. Gowdru Shridhara, L. Antoni, O. Krídlo, S. Krajči
	<i>Multi-Adjoint and One-Sided Concept Lattices</i> M.J. Benítez-Caballero, J. Medina, E. Ramírez-Poussa
	<i>Towards the aggregation of MACL</i> R.G. Aragón, J. Medina, S. Ruiz-Molina
	<i>Progress in Formal Context Transforms</i> F.J. Valverde-Albacete, C. Peláez-Moreno, I. de las Peñas-Cabrera, P. Cordero-Ortega, M. Ojeda-Aciego
	<i>Grounding problem in Formal Concept Analysis by means of Large Language Models</i> G.A. Aranda-Corral, A. Bundy, J. Borrego-Díaz, P.Y. Chan
18:00–20:30	<b>Cádiz tour</b>

WEDNESDAY 11 <sup>th</sup>	
Location: Aulario “La Bomba” (Building 1812)	
9:00–10:00	<b>Keynote Speaker: Bernhard Ganter</b> Title: Contextual Attribute Logics Chairperson: Jesús Medina
10:00–11:00	<b>Session 3</b> Chairperson: Dominik Dürschnabel
	<i>Exploring the 3-Dimensional Variability of Websites’ User-Stories using Triadic Concept Analysis</i> Alexandre Bazin, Thomas Georges, Marianne Huchard, Pierre Martin and Chouki Tibermacine
	<i>Exploring Old Arabic Remedies with Formal and Relational Concept Analysis</i> Vanessa Fokou, Karim El Haff, Agnès Braud, Xavier Dolques, Florence Le Ber, Véronique Pitchon
	<i>Conceptual Mapping of Controversies</i> Claude Draude, Dominik Dürschnabel, Johannes Hirth, Viktoria Horn, Jonathan Kropf, Jörn Lamla, Gerd Stumme, Markus Uhlmann
11:00–11:20	Coffee break
11:20–12:55	<b>Session 4</b> Chairperson: Sébastien Ferré
	<i>Towards a generalized modus ponens based on the <math>\varphi</math>-index of inclusion</i> Carolina Díaz-Montarroso, Nicolás Madrid, Eloísa Ramírez-Poussa
	<i>Efficiency of fuzzy decision algorithms based on the strength of decision rules</i> Fernando Chacón-Gómez, María Eugenia Cornejo Piñero, Jesús Medina
	<i>Comparing Relational Concept Analysis and Graph-FCA on their common ground</i> Vanessa Fokou, Peggy Cellier, Xavier Dolques, Sébastien Ferré, Florence Le Ber
	<i>What can FCA-based Boolean matrix factorization do for object-attribute biclustering?</i> Martin Trnecka, Roman Vyjidacek
	<i>(Kw) Analyzing the relationship between the factorization of formal contexts and independent subcontexts</i> Roberto G. Aragón, Jesús Medina, Eloísa Ramírez-Poussa
13:00–20:00	<b>Excursion including the lunch</b>

**THURSDAY 12<sup>th</sup>**

**Location: Aulario “La Bomba” (Building 1812)**

9:00–10:00	<b>Keynote Speaker: Radim Bělohlávek</b> Title: Interactions between the psychology of concepts and conceptual exploration of data Chairperson: Pablo Cordero
10:00–11:00	<b>Session 5</b> Chairperson: Karell Bertet
	<i>Rearrangement of fuzzy formal contexts for reducing cost of algorithms</i> Domingo López-Rodríguez, Manuel Ojeda-Hernández
	<i>Enhancing JAAD with Knowledge Graphs for Improved Pedestrian Crossing Predictions</i> Sandra Victor, Gowrishankar Ganesh, Madalina Croitoru
	<i>Symbolic Artificial Intelligence for Schema Therapy using Knowledge Graphs</i> Madalina Croitoru, Nathalie Blanc, Royce Anders
11:00–11:20	Coffee break
11:20–13:20	<b>Session 6</b> Chairperson: Ondrej Křídlo
	<i>Semantic explorations in Boolean matrix factorization utilizing formal concepts</i> Radim Bělohlávek, Martin Trnečka
	<i>Description Lattices of Generalised Convex Hulls</i> Christophe Demko, Karell Bertet, Jean-François Viaud, Cyril Faucher, Damien Mondou
	<i>Shapley value in classification problems with Triadic Formal Concept Analysis</i> Martin Waffo Kemgne, Blaise Bleriot Koguep Njionou, Leonard Kwuida, Dmitry I. Ignatov
	<i>What is the intrinsic dimension of your binary data? and how to compute it quickly</i> Tom Hanika, Tobias Hille
	<i>Aggregation of fuzzy graphs</i> Francisco Javier Talavera, Carlos Bejines, Sergio Ardanza-Trevijano, Jorge Elorza
	<i>Bimorphisms and attribute implications in heterogeneous formal contexts</i> L'ubomír Antoni, Peter Eliaš, Ján Guniš, Dominika Kotlárová, Stanislav Krajčí, Ondrej Křídlo, Pavol Sokol, L'ubomír Šnajder
13:20–15:00	Lunch
15:00–16:00	<b>Round Table.</b> Title: Past, present and future of CONCEPTS Participants: B. Ganter, R. Bělohlávek, S. Rudolph. M. E. Cornejo Chairperson: Jesús Medina
16:00–18:00	<b>Session 7</b> Chairperson: Sergei Obiedkov
	<i>Discovering the Structure of Odorants in Caenorhabditis elegans using Formal Concept Analysis</i> Emma Reyner-Fuentes, Carmen Peláez-Moreno, Francisco José Valverde-Albacete
	<i>Exploiting Formal Concept Analysis for Data Modeling in Data Lakes</i> Anes Bendimerad, Romain Mathonat, Youcef Remil, Mehdi Kaytoue
	<i>Document Classification via Stable Graph Patterns and Conceptual AMR Graphs</i> Eric George Parakal, Egor Dudyrev, Sergei O. Kuznetsov, Amedeo Napoli
	<i>(Kw) Interpretability of Formal Concepts in Word Co-occurrence Matrices</i> Akihiro Maeda, Takuma Torii, Shohei Hidaka
	<i>(Kw) Computing Stable Extensions of Argumentation Frameworks using Formal Concept Analysis</i> Sergei Obiedkov, Baris Sertkaya
	<i>(Kw) On the impact of sup-compositions in the resolution of multi-adjoint relation equations</i> David Lobo, Víctor López-Marchante, Jesús Medina
20:30	<b>Gala dinner</b>

<b>FRIDAY 13<sup>th</sup></b>	
<b>Location: Aulario “La Bomba” (Building 1812)</b>	
10:00–11:00	<b>Keynote Speaker - Sebastian Rudolph</b> Title: How to Agree to Disagree: Managing Conceptual Diversity using Standpoint Logic Chairperson: Uta Priss
11:00–11:20	Coffee break
11:20–13:20	<b>Session 8</b> Chairperson: Carmen Peláez-Moreno
	<i>(Kw) Connecting concept lattices with bonds between L-fuzzy formal contexts by external information</i> Ondrej Křídlo, Domingo López-Rodríguez, L’ubomír Antoni,, Eliaš, Krajčí, Manuel Ojeda-Aciego
	<i>(Kw) Fuzzy relational Galois connections between fuzzy transitive digraphs</i> Inma P. Cabrera, Pablo Cordero, Emilio Muñoz-Velasco, Manuel Ojeda-Aciego, Bernard de Baets
	<i>(Kw) Representation of Double Boolean Algebra: A Summarization and Ongoing Work</i> Prosenjit Howlader, Churn Jung Liau, Mohua Banerjee
	<i>(Kw) Concept-forming operators of multi-adjoint concept lattices with hedges</i> M. Eugenia Cornejo, Jesús Medina, Francisco José Ocaña
	<i>(Kw) Polyadic Relational Concept Analysis</i> Alexandre Bazin, Jessie Galasso, Giacomo Kahn
	<i>(Kw) A Formalization of Multi-Label Classification in terms of Lattice Theory and Information Theory: Concerning Datasets</i> Francisco Valverde-Albacete, Carmen Peláez-Moreno
13:20–15:00	<b>Closing Lunch Session</b>

**Key works (Kw)** will have 10 minutes for the presentation of the paper, plus 5 minutes for questions. The rest of contributions will have 15 for the presentation, plus 5 minutes for questions.

Social Events	
MONDAY 9 <sup>th</sup>	
20:30	<b>Welcome reception</b>
TUESDAY 10 <sup>th</sup>	
18:00–20:30	<b>Cádiz tour</b>
WEDNESDAY 11 <sup>th</sup>	
13:00–20:00	<b>Excursion including the lunch</b>
THURSDAY 12 <sup>th</sup>	
20:30	<b>Gala dinner</b>
FRIDAY 13 <sup>th</sup>	
13:10–15:00	<b>Closing Lunch Session</b>