



**Fourth International Conference**  
*Journées de l'Informatique Messine*  
**JIM'2003**



September 3-6, 2003, Metz, France



*Knowledge Discovery and Discrete Mathematics*

<http://www.iut.univ-metz.fr/~esanjuan/JIM03>

The yearly conference JIM is hosted by the *LITA* (Laboratory of Theoretical and Applied computer science) and the *IUT* (Institute of Technology) both of the University of Metz.

This fourth edition of JIM will focus on applications of *Discrete Mathematics* to *Knowledge Discovery in Databases (KDD)*. It will take place at the "Théâtre du Saulcy", Saulcy University Campus, Metz, France, from September 3-6, 2003.

Advances in data gathering, storage, and distribution technologies have attracted over the last years substantial attention among mathematicians, computer scientists, and users in techniques for analyzing and presenting new knowledge in a form understandable for human analysts. KDD refers to a multi-step process that can be highly interactive and iterative. It includes Data Mining algorithms to map out concepts contained in a data collection in order to gain better insight or new knowledge. In the case of large databases of scientific and technical documents, indirect Information Retrieval approaches are being developed.

Among the major tools which find powerful applications in KDD are those of discrete mathematics. The aim of the conference is to bring together leading researchers in this field of computer science and experts in data analysis. The conference will feature works dealing with theoretical results, models and applications of all areas of discrete mathematics.

**Organizer:** Eric SanJuan ([eric.sanjuan@iut.univ-metz.fr](mailto:eric.sanjuan@iut.univ-metz.fr))

Phone : +33 (0)3 87 31 51 88 ; Fax : +33 (0)3 87 54 71 62

IUT de Metz (STID) - Ile du Saulcy - 57045 Metz CEDEX 1 - France

**Program committee:**

Balcazar, J. L. (Spain)	Duentsch I. (Canada)	Kratsch D. (France)	Pouzet M. (France)
Berry A. (France)	Govaert G. (France)	Nadif M. (France)	Rosenberg I. (Canada)
Boros E. (USA)	Haehnle R. (Sweden)	Napoli A. (France)	Sofronie V. (Germany)
d'Aubigny G. (France)	Hammer P.L. (USA)	Orlowska E. (Poland)	Valtchev P. (Canada)
Diday Edwin (France)	Iturrioz L. (France)	Polanco X. (France)	Wang H. (UK)

**Organization Committee:**

Aignel D., Berry A., Gautier P., Margenstern M., Mohamed N., Sigayret A., Singer D.



## Publications:

Lectures and papers accepted for presentation at the conference will be published in the proceedings of JIM'2003 edited by the INRIA. Papers will also be available on-line at the INIST website.

A selection of papers presented at the conference will be published in **Special issues of journals Discrete Applied Mathematics and Soft Computing.**

## Registration:

For attending the colloquium contact the organizer [eric.sanjuan@iut.univ-metz.fr](mailto:eric.sanjuan@iut.univ-metz.fr) or see the information available on the website: <http://www.iut.univ-metz.fr/~esanjuan/JIM03>.

It is necessary to pay the registration fee : 150 • before **July 15**, 200 • after. This includes the proceedings of the conference, 3 lunches and coffee breaks.

## Program:

### *Wednesday September 3*

<b>Session 1 Lattice analysis</b>		
8h30	talk 1	<b>Petko Valtchev</b> (Montréal University - Canada) <i>Towards scalable divide-and-conquer methods for computing concepts and implications</i> <i>Joint work with Duquenne V.</i>
9h30	paper 1	<b>Obiedkof S., Duquenne V.</b> <i>Incremental construction of the implication basis</i>
10h00	paper 2	<b>Berry A., Bordat J-P., Sigayret A.</b> <i>Concepts can't afford to stammer</i>
10h30	break	
11h00	paper 3	<b>Valtchev P., Rouane Hacene M., Huchard M., Roume C.</b> <i>Extracting formal concepts out of relational data</i>
11h30	paper 4	<b>Achache A.</b> <i>Préfermetures et fermetures</i>
12h00	paper 5	<b>Le Ber F., Napoli A.</b> <i>Three Galois lattices of topological relations: design, comparison and use</i>

12h30 Lunch

<b>Session 2 Logical Analysis of Data</b>		
14h30	talk 2	<b>Peter L. Hammer</b> (Rutgers University - USA) <i>The Logical Analysis of Data and Applications to Biomedical Informatics</i>
15h30	talk 3	<b>Endre Boros</b> (Rutgers University - USA)
16h30	break	
17h	talk 4	<b>Edwin Diday</b> (Paris 9 University - France) <i>Concepts and Galois lattices in symbolic data analysis</i>
18h	paper 6	<b>Singer D.</b> <i>Une théorie des ensembles flous basée sur des semigroupes totalement ordonnés</i>

## Thursday September 4

Session 3 Graphs and discrete spaces		
8h00	talk 5	<b>Anne Berry</b> (Clermont - Ferrand 2 University - France) <i>Minimal Separation and Graph Extremities</i>
9h00	paper 7	Caspard N., Monjardet B. <i>The lattice of finite convex geometries</i>
9h30	paper 8	Domenach F., Leclerc B. <i>Overhangings in Closure Systems</i>
10h00	break	
10h30	talk 6	<b>Ivo Düntsch</b> (Brock University - Canada) <i>Region based theory of discrete spaces: A proximity approach</i> <i>Joint work with Vakarelov D.</i>
11h30	paper 9	<b>Bekkali M., Zhani D.</b> <i>Stone spaces and Ideals of posets</i>
12h00	paper 10	<b>Erraji F.</b> <i>On the complementation in the lattice of subalgebras of a Boolean algebra</i>

12h30 Lunch

Session 4 Logic		
14h30	talk 7	<b>Reiner Hähnle</b> (Chalmers University - Sweden) <i>State and prospects of software using Many-Valued Logics</i>
15h30	paper 11	<b>Ansotegi C., Larrubia J., Li C. M., Many F.</b> <i>Mv-Satz: A SAT Solver for Many-valued Clausal forms</i>
16h00	break	
16h30	talk 8	<b>Viorica Sofronie - Stokkermans</b> (MPII of Saarbruecken - Germany) <i>Automated theorem proving by resolution in non-classical logics</i>
17h30	paper 12	<b>Besombes J., Marion J-Y.</b> <i>Efficient learning of regular tree languages and applications</i>
18h00	paper 13	<b>Tomasik J. A., Weyman J.</b> <i>Category localisation - a semantics for specification refinements</i>

## Friday September 5

Session 5 Fuzzy systems 1		
8h30	talk 9	<b>Gérard Govaert</b> (Compiègne University - France) <i>Fuzzy clustering via block mixture models</i> <i>Joint work with Nadif M.</i>
9h30	paper 14	<b>Jollois F-X, Marcheti F., Nadif M.</b> <i>Initialization strategies and a methodology for getting the number of clusters in mixture models</i>
10h00	paper 15	<b>Carrizosa Z., Martin-Barragan B., Romero Morales D.</b> <i>A biobjective model for classification</i>
10h30	break	

11h00	talk 10	<b>José L. Balcázar</b> (Barcelona polytech. University - Spain) <i>Support vector regression</i>
12h00	paper 16	<b>Colombo T., Quentin Y., Guénoche A.</b> <i>Recherche de zones denses dans un graphe : Application aux gènes orthologues</i>

12h30 Lunch

<b>Session 6 Fuzzy systems 2</b>		
14h30	talk 11	<b>Gérard d'Aubigny</b> (Grenoble 2 University - France) <i>Missing Data Analysis</i>
15h30	paper 17	<b>Grabisch M., Labreuche C.</b> <i>Interaction between attributes in a general setting for knowledge discovery</i>
16h00	break	
16h30	paper 18	<b>Gras R., Kuntz P.</b> <i>Discovering R-rules with an oriented hierarchy</i>
17h00	paper 19	<b>Latiri C. Ch, Ben Yahia S., Chevallet J.P., Jaoua A.</b> <i>Query expansion using fuzzy association rules between terms</i>
17h30	paper 20	<b>Bayon R., Lygeros N., Sereni J. S.</b> <i>Nouveaux progrès dans l'énumération des modèles mixtes</i>
18h00	paper 21	<b>Mari J-F, Le Ber F.</b> <i>Temporal and Spatial Data Mining with Second Order Hidden Markov Models</i>

### *Saturday September 6*

<b>Session 7 Applications</b>		
8h30	paper 22	<b>Akbar Z.</b> <i>Marketing data classification using Johnson's algorithm</i>
9h00	paper 23	<b>Berry A., Sigayret A., Sinoquet C.</b> <i>Maximal sub-triangulation as preprocessing phylogenetic data</i>
9h30	paper 24	<b>Kamdem R., Njiwoua P.</b> <i>Architecture Exploration Using Concept Lattices</i>
10h00	break	
10h30	talk 12	<b>Hui Wang</b> (Ulster University - United Kingdom) <i>Text Mining and Contextual Probability</i>
11h30	paper 25	<b>Cherfi H., Napoli A., Toussaint Y.</b> <i>Towards a Text Mining Methodology Using Frequent Itemsets and Association Rule Extraction</i>
12h30	paper 26	<b>Kuznetsov S. O.</b> <i>Stability as Inverse Variance of a Formal Concept</i>