

Preface

Formal concept analysis (FCA) is a mathematical field rooted in lattice and order theory, which, although being of such a theoretical nature, has proved to be of interest to various applied fields such as knowledge discovery and data mining, database theory, data visualization, and many others.

The goal of the International Conference on Formal Concept Analysis (ICFCA) is to offer researchers from different backgrounds the possibility to present and discuss their research related to FCA. Since the first ICFCA conference in 2003 in Darmstadt, Germany, it has been held annually in different countries in Europe, Africa, America, and Australia.

The 13th ICFCA took place during June 23–26, 2015 in Nerja (Málaga), Spain, organized by members of the Universidad de Málaga. There were 38 submissions by authors from 16 different countries. Each paper was reviewed by three members of the Program Committee (sometimes four). Sixteen significant papers were chosen for publication in this volume, amounting to an acceptance rate of 42%. Seven other works in progress were considered for presentation during the conference and included in a supplementary volume.

This volume presents a set of articles that cover a wide range of fields about or related to FCA. The papers included in this volume are divided into different sections: **Theory**, with papers that discuss various theoretical aspects on FCA, **Methods and Applications**, with papers that show the application of FCA to different fields, and **Enhanced FCA**, with papers that present new trends in FCA, for instance, pattern structures of fuzzy FCA.

As an addition to previous conferences, the new section **Graphs and FCA** includes a selection of papers that relate graph theory or graph applications to FCA, from various points of view. These papers were presented in the special session **Practical Graph Applications in FCA**.

Apart from the regular sections, the conference included a presentation, for the first time, of a survey paper on FCA (*Formal Concept Analysis and Information Retrieval: A Survey*), which shows the maturity of this discipline.

We were also delighted that four prestigious researchers accepted the invitation to give a talk, and we also included their corresponding papers:

- *Measuring the Implications of the D-basis in Analysis of Data in Biomedical Studies* by Prof. Dr. Kira Adaricheva, Nazarbayev University (Kazakhstan);
- *Quantitative Redundancy in Partial Implications* by Prof. Dr. José Luís Balcázar, Universitat Politècnica de Catalunya (Spain);
- *Close encounters with transitivity in various relational frameworks* by Prof. Dr. Bernard De Baets, Ghent University (Belgium);
- *Formal Concept Analysis from the Standpoint of Possibility Theory* by Prof. Dr. Henri Prade, IRIT (France).

Our deepest gratitude goes to all the authors of submitted papers. Choosing ICFCA 2015 as a forum to publish their research was key to the success of the conference. Besides the submitted papers, the high quality of this published volume would not have been possible without the strong commitment of the authors, the Program Committee and editorial board members, and the external reviewers. Working with the efficient and capable team of local organizers was a constant pleasure. We are deeply indebted to all of them for making this conference a successful forum on FCA.

Last, but not least, we are most grateful to Springer for showing, for the 13th consecutive year, their trust in the International Conference on Formal Concept Analysis, as well as to the organizations that sponsored this event: the Universidad de Málaga, Andalucía Tech (International Campus of Excellence), the Patronato de Turismo de la Costa del Sol and the Área de Turismo del Ayuntamiento de Nerja, all in Spain. Finally, we would like to emphasize the great help of EasyChair in making the technical duties easier.

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