Title of the session: **Fuzzy methods in Data Mining and Knowledge Discovery**

Short description of the topic:

The EUSFLAT working group on Learning and Data Mining (DAMi) presents a special session as part of the IPMU conference. The objective of the special session is to provide a forum for the discussion of recent advances in the application of Data Mining and Knowledge Discovery methods and technologies to diverse problems, focusing on those involving fuzzy logic and technology, and to offer an opportunity for researchers to identify new and promising research directions.

Data Mining aims at the automatic discovery of underlying non-trivial knowledge from datasets by applying intelligent analysis techniques. The interest in this research area has experienced a considerable growth in the last years due to two key factors: (a) knowledge hidden in organizations’ databases can be exploited to improve strategic and managerial decision-making in the current ultra-competitive markets; (b) the large volume of data managed by organizations makes it impossible to carry out an analysis process manually.

Nowadays, the volume of information digitally stored has considerably increased not only in database format but also in text format which is available in open source bases such as the Web, including log files registering the use of the information. This has contributed to increase the interest on Text and Web Mining techniques. In one hand, these techniques aim to automatize the analysis process by introducing a variety of intelligent techniques to learn, optimize and represent uncertain and imprecise knowledge. On the other hand, these tools offer the possibility to analyze massive data offering more efficient algorithms and a suitable selection of obtained results in terms of their novelty, usefulness and interpretability.

**Keywords:** Data Mining, Knowledge Discovery, Big Data analysis

**Topics of interest include, but are not limited to, the following topics:**

- Data, text and web mining
- Stream data mining
- Temporal data series
- Big data mining
- Imprecision, uncertainty and vagueness in data mining
- Data pre- and post- processing
- Parallel and distributed data mining algorithms
- Information summarization and visualization
- Human-machine interaction for data access
- Linguistic description of information
- Semantic models to represent input data and extracted knowledge in a Data Mining process
- Applications: health, tourism, biological process, customer profiles, anomaly detection, emergency management, situation recognition, etc.

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