

## ANNO CULTURALE 2012

Informiamo i nostri Soci che, nel quadro delle manifestazioni e attività previste dalla Sezione, il giorno

## 19 ottobre2012, ore 14.00

presso il Dipartimento di Informatica, Sistemistica e Comunicazione dell'Università di Milano Bicocca - Viale Sarca, 336- Milano il **Prof. Enric Trillas**, ricercatore emerito dell'**European Centre for Soft Computing**- Mieres (Asturias) terrà un seminario su:

## TOWARDS A FUZZY MODEL FOR COMMONSENSE REASONING

## ABSTRACT:

In the setting of a general type of fuzzy algebras comprising ortholattices and, in particular Boolean algebras, as well as De Morgan algebras, and Standard algebras of fuzzy sets, it will be presented a new theoretic view of Ordinary, Everyday, or Commonsense Reasoning. It is done through a mathematical modeling of the sets of conjectures and refutations, and for which goal some characteristics of commonsense reasoning are pointed out. It is supposed that the reasonings are done in Natural Language, but only with non-ambiguous precise and imprecise linguistic terms, represented through the corresponding and careful process of design, by crisp and fuzzy sets, respectiveSince people only do deductive reasonings in, at most, a 25% of the cases, it is obvious the importance of studying the restant 75% of non-deductive types of reasoning.

Since consistency seems essential for good rationality,the main idea behind the presentation is a classification of those 'conclusions' that can be reached from a set of consistent premises. From the basic concept of a conjecture, or 'conclusion' not contradictory with the premises, a common theoretic framework for the three typical forms of reasoning, that is, deduction, abduction, and speculation, is introduced and it is pointed out the importance of speculation in commonsense reasoning for either obtaining hypotheses, or consequences. It is shown that conjectures can be classified in weak and strong (or Tarski's) consequences, hypotheses and speculations. Some basic properties of these conclusions are shown like, for instance, the consistency of consequences and refutations, the non-consistency and anti-monotonicity of hypotheses, or the nonmonotonicity of speculations. It is also studied from where the typical 'jumpings' of non-deductive reasoning come, as well how a supposed hypothesis can be 'falsified'.

What will not be taken into account is the case in which the premises are jointly given with either a numerical, or linguistic, weight, and, in this sense it can be said that the presentation refers to 'crisp' reasoning with fuzzy sets. How the conclusions of the reasoning be supported by a numerical or linguistic weighting of the premises is yet under study.