IMAC

Institut Universitari de Matemàtiques i Aplicacions de Castelló
Universitat Jaume I

Institut de Matemàtiques i Aplicacions de Castelló (IMAC)

UNIVERSITAT JAUME·I

Applications of Fuzzy Topology

Universitat Jaume I

IMAC, TI1329DS, December 13, 2012

Schedule

10:30-11:15 Salvador Romaguera (Univ. Politécnica de Valencia): On Fuzzy Metric Spaces: some new and old aspects.

We discuss several constructions and structures in the realm of fuzzy metric spaces, in the senses of Kramosil and Michalek, and George and Veeramani, respectively, emphasizing on the questions of completion, construction and properties of the Hausdorff fuzzy metric, connections between fuzzy metrics and domain theory, and study of contraction conditions and existence of fixed points for self-maps of fuzzy metric spaces.

11:20-12:05 Pedro Tirado (Univ. Politécnica de Valencia): Analysis of complexity by means asymmetric and fuzzy structures.

In 1995, M. Schellekens began the development of a mathematical model to analyze the algorithmic complexity based on the construction of a quasimetric defined on the space of the complexity [M. Schellekens, The Smyth completion: a common foundation for denotational semantics and complexity analysis, in: Proc. MFPS 11, Electronic Notes in Theoretical Computer Science 1 (1995), 211-231]. This model provides an adequate computational interpretation of the fact that a program or an algorithm is more efficient than other one in all of its inputs, however this framework does not give a computational interpretation of the fact that a program or an algorithm is asymptotically more efficient than another. The fuzzy quasi-metric spaces provide a parameter "t" such that a suitable use of this ingredient may give rise extra information on the involved computational process; thus we introduce the concept of complexity fuzzy quasi-metric space, which provides a model to interpret the asymptotic efficiency of the complexity functions.
In this context we present some fixed-point theorems by using appropriate notions of completeness and we apply this approach to deduce the existence of solution for some recurrence equations associated to the analysis of Quick-sort algorithms and Divide & Conquer algorithms, respectively. Finally we present other quasi-metric structures that can been used to analyze the complexity of programs and algorithms.

12:30-13:15 Francisco Castro (Univ. Politécnica de Valencia): Estudios de proximidad vía métricas difusas intuicionistas. Aplicaciones en sistemas de información basados en localidad de accesos.

La noción de espacio métrico intuicionista difuso es una generalización natural del concepto de espacio métrico que nos ofrece la posibilidad de medir grados de cercana y lejana entre elementos de un conjunto difuso según un parámetro t. Un uso típico de este parámetro es la representación de la evolución temporal dentro del conjunto. Veremos como aprovechar esta analogía para y cómo ajustar las métricas para aplicar sus resultados en estudios de predicción o de identificación de patrones.