A Special Session on

Atanassov Intuitionistic Fuzzy Sets

organized by Humberto Bustince

Description

In recent years there is a huge development in the field of Atanassov intuitionistic fuzzy sets. These sets have shown themselves to be a very appropriate tool to deal with those situations where, due to the lack of information or the uncertainty it is not possible to provide accurate values of the membership functions. Atanassov intuitionistic fuzzy sets provide a way to overcome this difficulty by enabling to use a second value, the non-membership value, which allows to handle uncertainty. In this session we intend to bring together practitioners of both Atanassov intuitionistic fuzzy set theory and the closely related interval-valued Atanassov intuitionistic fuzzy theory. In this sense, theoretical developments as well as applications are welcome, since we intend this session to become a forum for discussing the most recent developments in the field. In particular, this session covers, among others, the following topics.

- Theoretical aspects of Atanassov intuitionistic fuzzy sets (AIFS) and interval-valued Atanassov intuitionistic fuzzy sets (IVAIFS).
- Aggregation functions for AIFS and IVAIFS.
- Linear orders for AIFS and IVAIFS.
- AIFS and IVAIFS in applications, including image processing, classification, decision making, machine learning, etc.
- Relation of AIFS and IVAIFS with other extensions, such as interval-valued fuzzy sets, hesitant fuzzy sets, Pythagorean fuzzy sets, etc.
- Construction of AIFS and IVAIFS from data.
Short biography of the organizer(s) and contact information:

**Short Bio of organizers**

**Humberto Bustince** received his B.S. degree on Physics from the Salamanca University, Spain, in 1983 and his Ph.D. degree in Mathematics from the Public University of Navarra, Pamplona, Spain, in 1994. He has been a teacher at the Public University of Navarra since 1991, and he is currently a Full Professor with the Department of Automatics and Computation. He served as subdirector of the Technical School for Industrial Engineering and Telecommunications from 01/01/2003 to 30/10/2008 and he was involved in the implantation of Computer Science courses at the Public University of Navarra. He is currently involved in teaching artificial intelligence for students of computer sciences.

Dr. Bustince has authored more than 120 journal papers (Web of Knowledge), and more than 100 contributions to international conferences. He has also been co-author of four books on fuzzy theory and extensions of fuzzy sets.

His research interests lie in the area of Interval-valued fuzzy sets (interval type-2 fuzzy sets), Atanassov’s intuitionistic fuzzy sets, aggregation functions, implication operators, inclusion measures, image processing, decision making and approximate reasoning.

Javier Montero is Full Professor at the Department of Statistics and Operational Research, Faculty of Mathematics, Complutense University of Madrid (Spain). He holds a Ph.D. in Mathematics from Complutense University since 1982 and has been leading research projects since 1987. He is author of more than 100 research papers in refereed journals such as Approximate Reasoning, Computational Intelligent Systems, Computer and Operational Research, European Journal of Operational Research, Fuzzy Sets and Systems, General Systems, Human and Ecological Risk Assessment, IEEE Transactions on Neural Networks, IEEE Transactions on Systems, Man and Cybernetics, IEEE Transactions on Industrial Informatics, Information Sciences, Intelligent Systems, Journal of Algorithms, Knowledge Based Systems, Kybernetes, Kybernetika, Mathware, Multiple Valued Logic, New Mathematics and Natural Computation, Non Linear Analysis, Omega, OR Spectrum, Pure and Applied Geophysics, Remote Sensing, Soft Computing, Top, and Uncertainty, Fuzziness and Knowledge-Based Systems, plus a similar number of refereed papers as book chapters. His research interests are in Aggregation Operators, Preference Representation, Multicriteria Decision Aid, Group Decision Making, System Reliability Theory, Image Processing and Classification problems, mainly viewed as application of Fuzzy Sets Theory. He has been the President of the European Association for Fuzzy Logic and Technology (EUSFLAT), Vice-President of the International Fuzzy Systems Association (IFSA), with 18 years in different academic management positions at his University (including Dean at the Faculty of Mathematics and Vice-Rector).


Barbara Pękala is Assistant Professor at the Faculty of Mathematics and Natural Sciences, University of Rzeszów, Al. Rejtana 16 C, 35-959 Rzeszów, Poland. She holds a PhD (2008) – AGH University of Science and Technology (Poland) – Mathematics. She is author of more than 25 research papers in refereed journals among others journal papers in Fuzzy Sets and Systems, Information Sciences, Kybernetika, and also book chapters. Her number of active participation in conferences is about 24. Her research interests are in aggregation operators, preference representation, multicriteria decision making, group decision making, fuzzy sets theory and their extensions: atanassov intuitionistic fuzzy relations and interval-valued fuzzy relations and their application: image processing and classification problems. National project in which she participated as responsible of research has title: Application of Atanassov Intuitionistic Fuzzy Sets to Knowledge Representation and Reasoning for Decision Support, Nr N N519 384936. She collaborates with Warsaw University of Technology, University of Ljubljana and the Public University of Navarra. She is the Secretary and the Treasurer in Polish Mathematical Society, Division of Rzeszów (Poland) and at her University Head of the Laboratory of Approximate Methods in Center for Innovation and Transfer of Natural Sciences and Engineering Knowledge.

Javier Fernandez received the M.Sc. and Ph.D. degrees in mathematics from the University of Zaragoza, Saragossa, Spain, in 1999 and 2003, respectively. He is currently an Associate Lecturer with the Department of Automatics and Computation, Public University of Navarre, Pamplona, Spain. He is the author or coauthor of around 30 original articles and he is involved in teaching artificial intelligence and computational mathematics for students of the computer sciences. His research interests include fuzzy techniques for image processing, fuzzy sets theory, interval-valued fuzzy sets theory, aggregation functions, fuzzy measures, stability, evolution equation, and unique continuation. He is also assistant editor of the Mathware&Soft Computing online magazine of the EUSFLAT Association.
Important Dates

- Paper submission **February 8, 2015**
- Notification of acceptance for papers **March 23, 2015**
- Camera-ready paper submission **April 21, 2015**
- Early registration deadline **April 23, 2015**
- Conference **August 2-5, 2015**

Submission of the papers

Please submit your papers for this special session to both the organizers and conference online submission system (http://fuzziee2015.org/) by indicating the title of the special session.