

PREFACE

Advanced Mathematics, is a whimsical though very beautiful language when you understand it. Although we have been advancing through the years, we still have room for new theories and achievements that will unlock secrets and revolutionize this world and remain temporal in time, which is the beauty of Mathematics.

The series of International Conferences on Algebraic Hyperstructures and Applications (AHA) aims at bringing together researchers and academics, promoting and advancing innovative ideas for the presentation and discussion of novel theories and applications of Algebraic Hyperstructures and related areas.

The Twelfth International Conference on Algebraic Hyperstructures and Applications (12th AHA 2014) was held in Xanthi, Greece, from 2nd to 7th of September 2014 and supported by Democritus University of Thrace (Special Account) and the International Association of Algebraic Hyperstructures and Applications. We have been looking forward to this moment of hosting researchers of 13 countries (Italy, Romania, Iran, Czech Republic, Slovenia, Israel, Turkey, Kuwait, Thailand, Greece etc) here in Xanthi, the town of a thousand colours!

The Twelfth International Conference on Algebraic Hyperstructures and Applications is a pure research conference in which original and innovative papers presented. The AHA conference is held every three years (since 1978) in countries of Europe and Asia. The previous AHA conferences were held in Italy (Taormina 1978,1983 and Udine 1985), Greece (Xanthi 1990), Romania (Iasi 1993), Czech Republic (Prague 1996), Italy (Taormina 1999), Greece (Samothece 2002), Iran (Babolsar 2005), Czech Republic (Brno 2008) and Italy (Pescara 2011).

The scientific committee was: S.Spartalis (Chair), P. Corsini, B.Davvaz, T. Vougiouklis, V. Leoreanu Fotea, R. Ameri, I. Rosenbeg, M.M. Zahedi, S. Comer, M. Stefanescu, R. Migliorato, J. Chvalina, S. Hoskova Mayerova, A. Maturo, M. Konstantinidou Serafimidou, R.A. Borzooei, M. Refai, I. Cristea, M. Scafati Tallini, A., Y. Feng, A. Deamalidis, P. Racova, A. Ventre, B.A. Ersoy, K. P. Shum, A. Kalampakas, A. Taouktsoglou and N. Antampoufis.

Conference organization Co-chairs: N. Karampetakis and L. Iliadis.

Local Organizing Committee: A. Taouktsoglou, K. Skoulariki and L. Maltudoglou.

Topics of Interest (research areas and applications) : Hypergroupoids, Semi-hypergroups, Hypergroups, Canonical Hypergroups, Complete Semihypergroups and Hypergroups, Regular Hypergroups, Hyperrings, Hyperfields, Hyperspaces, Hypervector Spaces, Hyperalgebras, Hyperlattices, H_V -structures, H_V -groups-rings-modules, H_V -vector spaces, H_V -Lie algebras, H_V -matrices, Hyperstructures associated with binary or n -ary relations, Non-associative Hyperstructures, Feebly associative Hyperstructures, Join spaces, Hyperstructures associated to geometric spaces, Γ -structures and Γ -hyperstructures, n -ary Hyperstructures, Ordered Hyperstructures, t -Groupoids, Partial Semihypergroups, Homomorphism Theory in Hyperstructures, Topological hypergroups, Topological

hyperspaces, Hypermatrices representations, Fuzzy algebraic Hyperstructures, Fuzzy sets and Hyperstructures, Fuzzy BCK-Algebras, Soft sets and Hyperstructures, Rough sets and Hyperstructures, Fuzzy/rough/soft subhyperstructures, Cryptography, Codes, Assembly Line Design, Graph and Hypergraph theory, Formal Languages, Automata, Artificial Intelligence, Probabilities, Economics and Mathematical finance, Geometry, Group Theory, Lattices, Rough Sets, Median Algebras, Number theory, Differential equations, Chemistry, Decision Making, Biology, Biomathematics, Linguistics, Hadronic Mechanics.

The research papers were selected after a refereeing procedure according to the usual high standards of the International Journal of Algebraic Hyperstructures and its Applications (Publisher: International Algebraic Hyperstructures Association (IAHA) joint with Iranian Fuzzy System Association).

Sincere thanks are due to the referees (two per paper) for their fruitful assistance as well to the editor of the International Journal of Algebraic Hyperstructures and its Applications, Professor Reza Ameri.

Professor Stefanos Spartalis

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