1st Symposium on "Hypercompositional Algebra – new Developments and Applications (HAnDA)"

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Hypercompositional Algebra is the branch of Algebra which deals with structures endowed with multi-valued operations.

Multi-valued operations, also called hyperoperations or hypercompositions, are operations in which the result is multi-valued, rather than a single element. More precisely a *hypercomposition***,** in a non-void set H, is a function from $H\times H$ to the powerset $P(H)$ of H.

Hypercompositional structures came into being through the notion of the hypergroup. The hypergroup was introduced by F. Marty in 1934 (F. Marty, Sur un généralisation de la notion de groupe, Huitième Congrès des mathématiciens Scand., pp. 45-49, Stockholm 1934).

An algebraic structure on a non-void set H that satisfies the axioms

i. $a\cdot(b\cdot c) = (a\cdot b)\cdot c$ for all a,b,c in H (associative axiom)

ii. $a\cdot H = H\cdot a = H$ for all a in H (reproductive axiom)

is called *group* if «$\cdot$» is a composition and *hypergroup* if «$\cdot$» is a hypercomposition. In a hypergroup the result of the hypercomposition of any two elements is always a non-void set.

HAnDA aims to be the natural progression in the dissemination of research findings on the Algebraic Hypercompositional Structures and their Applications, beyond the formal publications in journals (which will be used for its proceedings) or books and keep ongoing and pleasantly welcoming pure research on the subject, interdisciplinary influences and more applications.

Since 1934, when it was introduced, Hypercompositional Algebra is currently going through the 8th decade of its existence, and has already entered into a new era of expansion, exposing a fertile territory for theoretical research and contributing with applications to the growth of other disciplines of Mathematics and Technology.

This symposium is dedicated to the memory of Jean Mittas, a Greek pioneer of the theory of hypercompositional structures, who lived and worked in Thessaloniki. He was a Professor at Aristotle University of Thessaloniki and the Dean of this University for many years. His work extends in many fields of Hypercompositional Algebra e.g. on the general theory of hypercompositional structures, on the theory of valuation and hypervaluation in hypergroups and in hyperfields, on the theory of lattices, hyperlattices and superlattices, on the theory of linear hyperspaces, on hypermetric Analysis etc.

Christos G. Massouros

Christos G. Massouros is a graduate of the National and Kapodistrian University of Athens, Department of Mathematics. He did graduate work in theoretical physics and mathematics at the National Center for Scientific Research "Democritos" (N.C.S.R. "Demokritos") in Athens. He received his Ph.D. from the National Technical University of Athens (NTUA). His main research interests are in the theory of Hypercompositional Structures and its applications. He is the author of a number of research and survey papers on the subject and has participated in many relevant international research programs. He has been a member of the academic staff of many Universities and held administrative positions. He presently holds an academic position at the Technological Educational Institute of Central Greece.

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Irina Cristea received the PhD degree in mathematics in 2007 from University «Ovidius» of Constanta, Romania. After a period of post doctorate studies at University of Udine, Italy, she became in 2012 Assistant Professor to the University of Nova Gorica, Slovenia, where she has currently the position of Associate Professor.

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Dr. Irina Cristea is deeply involved in the editorial activities, being member of the editorial board of 5 international journals and acting as a reviewer for numerous journals. She was member of the scientific committee of several international conferences and invited lecturer to some workshops.