

EDITORIAL

The theory of MV-algebras (usually called Waisberg algebras in the tradition of hispanish school) was formalized by C.C. Chang in 1958 [Trans. Amer. Math. Soc. 88 (1958) 467-490] in order to prove the completeness theorem of infinite-valued Lukasiewicz logic. Fuzzy set theory started in 1965 with the seminal paper of L.A. Zadeh "FUZZY SETS". Although both theories are almost coeval and both extend the classical Boolean logic, a full interplay between them was not developed for a long time. A first approach is due to R. Giles [in "Fuzzy reasoning and its Applications" (E.H. Mamdani and R. Gaines, Eds.), Academic Press (1981), 117-131], but the first theorem which connects both theories was given by L.P. Belluce [Canad. Math. J. 38 (1986) 1356-1379]. He proved that semisimple MV-algebras are representable via (subalgebras of) Bold algebras of fuzzy sets, just like Boolean algebras do for classical sets. Another recent result of the same author [in "Non-classical logics and their Applications to Fuzzy Subsets" (U. Hohle and E.P. Klement, Eds.), Kluwer Acad. Publ. (1995), 7-21] shows that an MV-algebra is (up to isomorphisms) the set of all fuzzy subsets of some nonempty set iff it is complete and sub-atomic, as similarly happens in the classical case using the Lindenbaum-Tarski theorem for complete and atomic Boolean algebras. Noteworthy is also a result of A. Di Nola [in "Fuzzy Logic" (R. Lowen and M. Roubens, Eds.), Kluwer Acad. Publ. (1993), 123-131] concerning the fact that every MV-algebra is a Bold algebra of fuzzy sets valued in a suitable ultrapower of the real unit interval. Hopefully all these existing results should encourage to assume MV-algebras like algebraic counterpart of fuzzy sets, like Boolean algebras do for classical sets. What are the best mathematical foundations of fuzzy set theory is nowadays a long-standing open question. In 1986 D. Mundici published his fundamental paper [J. Funct. Anal. 65 (1986) 15-63]. Since then and nowadays, the theory of MV-algebras has received an enormous attention for the deep connections which it has with other theories like, among others, Abelian lattice-ordered groups, AF C^* -algebras, desingularization of toric varieties, certain regular rings. The aim of this first issue (a second issue is in preparation) is that one of giving other contributions

to this theory presenting some selected topics, interesting for potential applications to fuzzy sets. Indeed the papers of F. Klawonn and J.L. Castro and of U. Hohle go in this direction as well. The work of C. S. Hoo continues previous topics of the same author, wellknown in the fuzzy literature. N.G. Martinez and H.A. Priestley solves a delicate question relying upon the famous duality of the second author. R. Cignoli and A. Torrens extend a result from Boolean algebras to the new context. Hoping that these papers can allure fuzzy algebraists to study more vigorously MV-algebras, I sincerely thank the invited authors and Prof. J. Jacas, the Chief editor, which has allowed this issue.

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Associate Editor