

PREFACE

This volume summarizes recent developments in the topological and algebraic structures in fuzzy sets and may be rightly viewed as a continuation of the standardization of the mathematics of fuzzy sets established in the “Handbook”, namely the *Mathematics of Fuzzy Sets: Logic, Topology, and Measure Theory*, Volume 3 of *The Handbooks of Fuzzy Sets Series* (Kluwer Academic Publishers, 1999). Many of the topological chapters of the present work are not only based upon the foundations and notation for topology laid down in the Handbook, but also upon Handbook developments in convergence, uniform spaces, compactness, separation axioms, and canonical examples; and thus this work is, with respect to topology, a continuation of the standardization of the Handbook. At the same time, this work significantly complements the Handbook in regard to algebraic structures. Thus the present volume is an extension of the content and role of the Handbook as a reference work.

On the other hand, this volume, even as the Handbook, is a culmination of mathematical developments motivated by the renowned *International Seminar on Fuzzy Set Theory*, also known as the *Linz Seminar*, held annually in Linz, Austria. Much of the material of this volume is related to the Twentieth Seminar held in February 1999, material for which the Seminar played a crucial and stimulating role, especially in providing feedback, connections, and the necessary screening of ideas. Some chapters are mature developments and significant extensions of ideas presented at the Seminar; however, other chapters are wholly new works growing out of the informal discussions and roundtables of the Seminar. Though this volume is not a proceedings of the Twentieth Seminar, its content is in large measure a culmination of work motivated by that Seminar and the historical role of the Linz Seminar in the systematization of the mathematics of fuzzy sets.

The editors commend the authors for their willingness to extend, update, and rewrite their chapters within a formal peer-review procedure overseen by the editors; and appreciation is expressed to the reviewers for improving these chapters. A special thanks for generous support goes to the *Bundesministerium für Wissenschaft und Forschung in Vienna*, the *Linzer Hochschulfonds*, and the *Fuzzy Logic Laboratorium Linz* in Hagensberg; and a special thanks for logistical support goes to the *Bildungshaus St. Magdalena* and its staff for facilitating the intimate setting of the Twentieth Seminar. Finally, gratitude is expressed to Kluwer Academic Publishers editors for their cooperation and incredible patience with the volume editors during the long period of preparation.

The Editors

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