Preface

Main intention of the book "Semilattices of Archimedean Semigroups" is to present some results of investigations concerning certain types of subsets and subsemigroups of a given semigroup in order to describe its structure. In particular, we consider relations between different generalized regular subsets of a semigroup S; connections between generalized regular and Green's subsets of S; connections between (generalized) regular parts of principal ideals of S generated by idempotents, as well as, (generalized) regular subsets of subsemigroups of S.

Chapter 1 consists of a preliminary material needed for reading the main parts of the book. Properties of semigroups with the non-empty set of idempotents based on connections between the group and two regular parts of principal ideals of these semigroups, generated by idempotents, are given in Chapter 2. Connections of *semilattice decompositions* of semigroups with certain equalities between generalized regular and Green's subsets are given in Chapter 3. The results concerning connections of equalities between different (generalized) regular subsets of semigroups with their *local properties* are present in Chapter 4. Finally, in Chapter 5, we have equalities of (generalized) regular subsets of semigroups and their connections with *hereditary properties* of semigroups.

Semilattice decompositions of semigroups, as a method for studying the structure of semigroups, play a very important role in this book. It was introduced by A. H. Clifford in 1941. Since that time several authors have

been working on the topic. Special contributions to the development of the theory of semilattice decompositions were made by T. Tamura, himself and, also, with co-authors N. Kimura and J. Shafer. Among the authors who gave contributions to the theory of semilattice decompositions are also M. Petrich, M. S. Putcha, and, in particulary, members of the Niš school of semigroups headed by Stojan Bogdanović.

This book is mainly based on the author's original results, some appearing in her PhD Thesis, some published into various articles, some appearing here for the first time in print.

Niš,

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