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Preface

Fuzzy Sets in Traffic and Transport Systems

The papers in this special issue were presented at the 9th Mini EURO Conference *Fuzzy Sets in Traffic and Transport Systems*, which took place in Budva, Yugoslavia in September 1997. The ninth Mini EURO Conference was devoted to Fuzzy Sets in Traffic and Transport Systems. It brought together researchers and practitioners dealing with the theory of fuzzy sets, uncertainty modeling and analysis and traffic and transportation engineering. Uncertainty, subjectivity, imprecision, and ambiguity characterize a wide range of traffic and transportation engineering parameters. Human operators, dispatchers, drivers, and passengers use this subjective knowledge or linguistic information on a daily basis when making decisions. Drivers, passengers, or dispatchers make decisions about route choice, mode of transportation, most suitable departure time, or dispatching trucks. In each case the decision-maker is a human. The environment in which a human expert makes decisions is most often complex, making difficult to formulate a suitable mathematical decision-making model. Thus, the development of fuzzy logic systems seems justified in such situations.

Basic results linked to the development of fuzzy sets date from Zadeh (1965). Realizing that Zadeh's approach could be successfully applied to traffic controllers, Pappis and Mamdani (1977) were first to use the principles of fuzzy logic to control the isolated intersection of two one-way streets. At the beginning and mid-1990s, interest in fuzzy logic applications in traffic and transportation increased in the world. Different traffic and transportation problems successfully solved using fuzzy set theory techniques are presented in the papers of many authors.

The primary goal of this special issue is to acquaint the reader with some of the significant applications of fuzzy logic in traffic and transportation engineering, and to indicate the directions for future research in this area. We are very thankful to Professor Hans-Jurgen Zimmermann, the editor-in-chief of the *Fuzzy Sets and Systems Journal*, who gave us the opportunity to be the guest editors of this special issue.

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