Preface

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Biographical notes: Hiroshi Sakai received his Doctor degree from Kyushu University, Japan. He is working as a Professor at Kyushu Institute of Technology (Tobata Campus). His primary research interests include rough sets, mathematical logic, logic programming and data mining.

Yasuo Kudo is an Associate Professor at College of Information and Systems, Muroran Institute of Technology, Japan. He received his PhD from Hokkaido University in 2000. His research interests include theory and application of rough set theory, non-classical logic, databases, and data mining.

Tetsuya Murai is an Associate Professor at Graduate School of Information Science and Technologies, Hokkaido University. He received his Dr. Eng. from Hokkaido University in 1994. Since 1985, he has been researching in fuzzy sets, modal logic, and granular computing.

Rough sets and granular computing, known as new methodologies for computing technology, are now attracting great interest of researchers. This special issue published by *International Journal of Reasoning-based Intelligent Systems* (*IJRIS*) presents five articles, and most of them were presented at the 27th Fuzzy System Symposium held at Fukui University, Fukui, Japan, 12–14 September 2011.

The first article by Tetsuya Murai, Sadaaki Miyamoto, Masahiro Inuiguchi and Seiki Akama investigates the mathematical structures with respect to *finite naive subsets, multisets and monoids* (*strings*), and connects each structure with other structure by using appropriate mappings. This mathematical method analysing the relation between fuzzy sets, rough sets and their hybridisation will be useful for granular computing. The second article by Yasuo Kudo considers relative reducts in decision tables, and revises *RBSVP algorithm* proposed by Min et al. The properties and theoretical results about a *revised RBSVP algorithm* are examined, and this algorithm is applied to rule generation. The third article by Akira Sekiguchi, Katsuo Inoue and Tomoko Kashima focuses on *variable precision rough sets model* by Ziarko, and applies this model to presuming the decision class. This method is validated by experiment on the design of digital camera. The fourth article by Hitomi Okuma proposes the concept of *division charts* in *rough non-deterministic information analysis* (*RNIA*), and describes theoretical properties of division charts. They are also employed to calculate the minimum degree and the maximum degree of data dependency. The last article by Hiroshi Sakai, Mao Wu and Michinori Nakata introduces a new approach of question-answering into *RNIA*, and applies the proposed approach to extract rules with interval-attributes from numerical data. Each of five papers describes the latest research on rough sets and granular computing, and proposes new techniques.

Finally, we would like to acknowledge all the authors for their efforts and contributions. We are very grateful to reviewers for their thorough and on-time reviews, too. We are also grateful to Professor K. Nakamatsu Chief Editor of *IJRIS*, for inviting us to serve as guest editors of this special issue.