**Special Issue on "New Trends in Mathematical Programming"**

# Preface

Mathematical programming has been one of the major pillars that sustain operations research. Not only being historically important, it should also be emphasized that this field is still growing. In fact, the speed of growth appears even increasing in these years, as evidenced by various new algorithms, exact and approximate, in linear and nonlinear programming, complementarity problems, combinatorial optimization, network programming, stochastic programming and other areas. Impact of mathematical programming is expanding into wide application areas, since problems of larger scales can now be solved by improved algorithms, and new applications are created by new algorithms. This is a result of synergetic effects of the recent advancement of computer power and the improvement of mathematical programming algorithms.

Looking at this opportunity, it was considered appropriate to publish a special issue of this journal on mathematical programming. The idea was first proposed by the previous editor, Konosuke Kawashima, and then taken over by the present editor, Susumu Morito; both of them made great efforts to transform the idea into a real publication, which is gratefully acknowledged.

To cover the wide spectrum of mathematical programming in this special issue, we tried to include survey papers on various subjects. There are five papers of this type, which are written on maximum flow algorithms, complementarity problems, optimization in control theory, power indices of weighted majority games, and approximation of fixed points. Of course, research papers that report their new results constitute the main portion of this special issue. There are nine papers in this category, ranging from theoretical analysis to applications. Most of them contain proposals of new algorithms, as well as results of their computational experiments. The main sources of these papers were the following two symposia: Symposium on Theory and Applications of Mathematical Optimization, Research Institute of Mathematical Science, Kyoto University, July 1998, and RAMP Symposium, September 1998, held in Kyoto. There were also a number of papers submitted in response to our Call for Papers, which appeared in this journal and Communications of the Operations Research Society of Japan.

The submission of papers was due December 1998. Then all the submitted papers have gone through the strict reviewing process of this journal. In concluding this preface, we would like to thank all the authors and reviewers, for their time and efforts, who made this special issue possible and successful.

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