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Topics in Numerical Analysis

With Special Emphasis on Nonlinear Problems

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Preface

This volume contains eighteen papers submitted in celebration of the sixty-fifth birthday of Professor Tetsuro Yamamoto of Ehime University. Professor Yamamoto was born in Tottori, Japan on January 4, 1937. He obtained his B.S. and M.S. in mathematics from Hiroshima University in 1959 and 1961, respectively. In 1966, he took a lecturer position in the Department of Mathematics, Faculty of General Education, Hiroshima University and obtained his Ph.D. degree from Hiroshima University two years later. In 1969, he moved to the Department of Applied Mathematics, Faculty of Engineering, Ehime University as an associate professor and he has been a full professor of the Department of Mathematics (now Department of Mathematical Sciences), Faculty of Science, since 1975. At the early stage of his study, he was interested in algebraic eigenvalue problems and linear iterative methods. He published some papers on these topics in high level international journals. After moving to Ehime University, he started his research on Newton's method and Newton-like methods for nonlinear operator equations. He published many papers on error estimates of the methods. He established the remarkable result that all the known error bounds for Newton's method under the Kantorovich assumptions follow from the Newton-Kantorovich theorem, which put a period to the race of finding sharper error bounds for Newton's method. This paper was written while he was visiting the Mathematics Research Center, University of Wisconsin-Madison, March–October 1985, where Professor Rall had asserted the necessity of interval computation through his seminar and papers. Professor Yamamoto had also recognized the importance of verified computation in the late 1970's. Recently he has been interested in superconvergence and related properties of finite difference methods for Dirichlet problems.

Professor Yamamoto has been a member of the editorial boards of four international journals. In particular, he was a principal editor of the Journal of Computational and Applied Mathematics during 1992–2000. He organized a number of domestic and international conferences on computational and applied mathematics. Among others, the meeting "International Symposium on Computational Mathematics" held in Matsuyama in 1990 was the first international meeting having more than 40 overseas participators on computational mathematics held in Japan. He was also elected as dean of the Faculty of Science, Ehime University, during 1991–1995 and as vice president of Japan SIAM in 1997.

We thank the authors for their creative contributions and the referees for their prompt and careful reviews. Thanks also go to Professor Hackbusch, the chief editor of *Computing*, and to Springer-Verlag for their supports.

Finally we wish Professor Yamamoto continued health, happiness, and rich scientific work.

Goetz Alefeld, Karlsruhe University
Xiaojun Chen, Shimane University

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50. (with Q. Fang and T. Tsuchiya) Finite difference, finite element and finite volume methods applied to two-point boundary value problems. J. Comp. Appl. Math. (to appear).

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