PREFACE

This issue of MAA presents seventeen papers representing some of the invited and contributed talks at the IMS Conference on Differential Equations from Mechanics held at the Institute of Mathematical Sciences, (IMS), the Chinese University of Hong Kong, Hong Kong, in June, 1999. The meeting brought together researchers from many countries in both the theoretical and numerical analysis of partial differential equations arising from mechanics and their applications. Various topics in mechanics were discussed such as theory of inviscid and viscous shock waves, shock-waves in general relativity, problems in geophysical flows, blow-up estimate for nonlinear heat equations, theory of dispersive waves, analysis of semiconductor devices, and numerical methods and their analysis for singular flows etc. The papers in this special issue reflect the considerable breadth in analysis and applications at the conference and contain many interesting results in theoretical and numerical aspects of the field, which include new existence theorems and techniques for various problems, new numerical methods and its convergence analysis, computations and qualitative analysis of important fluid flows.

It is a great pleasure to acknowledge the help I received in organizing the conference. First I would like to thank the Zheng Gu Ru Foundation and The Institute of Mathematical Sciences at the Chinese University of Hong Kong for financial support for the conference. Also other members in the organizing committee, Prof. Shing-Tung Yau, Xiao-Ping Wang, Tong Yang, Tao Tang, Jun Zou and Jing Cheng Wei had contributed in various ways to the success of the conference. Dr. Wai Kuen Yu and Ms. Lily Chan had performed willing and skillful secretarial and administrative services for the conference. I thank them all.

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