

Editorial Foreword

This volume of *Interdisciplinary Mathematical Sciences* collects invited contributions giving timely surveys on a diverse range of topics of contemporary research activities, including applications of analytic functions in periodic elastic mechanical problems, bifurcation and chaos in microelectromechanical systems, random dynamical systems and stochastic differential equations, epidemic disease propagation dynamics, inverse problems for equations of parabolic type, chaotic behavior of a two-component Bose–Einstein system, the p -Laplacian problems with a linking geometric structure, progress in chaos control, chaos synchronization and complex networks, mathematical modeling of cold plasma by partial differential equations of mixed type, gravitating Yang–Mills fields in arbitrary dimensions, the Hamiltonian constraint and Mandelstam identities in quantum gravity study, the lattice Boltzmann simulation and application to a nonlinear Schrödinger equation, stability of nonlocal time-delayed Burgers equation, bifurcation analysis of the Swift-Hohenberg equation, a new global-local computational method for differential equations, and a review on representing topological classes by harmonic quantities with applications in quantum field theory. The ordering of the chapters follows the alphabetic order of the last names of the first authors of the contributions.

We are grateful to all the authors for their contributions to this volume. Special thanks are due to Professor Zhenting Hou and Dr. Han-ping Chin, authors of Preface and Postscript, respectively, which provide vivid introductions to Professor Youzhong Guo for the reader. We would also like to thank Dr. Rajesh Babu, Production Specialist at World Scientific Publishing, for his professional editorial assistance.

We are privileged and honored to dedicate this volume to Professor Youzhong Guo, our teacher and life-long friend, on the occasion of his 75th birthday and 55 years of career in mathematical sciences.

Yisong Yang, Polytechnic Institute of New York University
Xinchu Fu, Shanghai University
Jinqiao Duan, Illinois Institute of Technology

August 10, 2009