PREFACE

In the past several decades extensive research has been devoted to the mathematical control theory, in particular for distributed parameter and stochastic systems, and its application in mathematical finance. Professor Xunjing Li, a distinguished educator and researcher, played a special leading role in the development of these research efforts, particularly related to the maximum principle for optimal controls in infinite dimensional state space from the late seventies of the last century until his untimely death in February, 2003. This commemorative volume collects research articles devoted to reviewing the state of the art of this and other related rapidly developing research and to exploring new directions of research in these fields. It is a tribute to the Life and Work of Professor Xunjing Li by his students, friends, and colleagues whose personal and professional lives he has deeply touched through his generous insights and dedication to his profession.

During June 3–5, 2005, Fudan University organized in Shanghai the "Workshop on Control of Distributed Parameters and Stochastic Systems in Memory of Professor Xunjing Li's Seventieth Birthday". We would like to thank all the participants for their presence. We also thank our colleague Yuan Zhou, our post doctors Juan Li and Mingyu Xu, and our graduate students Yashan Xu, Xiaobo Bao, Lei Wang, and Liang Zhu for their efficient services for the workshop. On behalf of all the participants, we also thank Jianxiong Huang for organizing a very nice excursion to Nanxun, Huzhou.

Many of the contributors in this volume are speakers at the workshop. There are a few others as well. Due to various reasons, we were not able to invite all the students, colleagues and co-authors of Professor Xunjing Li, which we feel very regret. The topics covered include several aspects of linear quadratic optimal control of deterministic and stochastic systems, controllability of stochastic and/or parabolic systems, nonlinear observers and stabilization, dynamical systems for PDEs, the maximum principle for optimally controlled quasi-linear elliptic obstacle problems, optimization of Navier-Stokes equation, assets and insurance pricing, and applied BSDEs and reflected BSDEs in the nonlinear probability.

It took concerted and collective efforts from many people to produce this volume. We would like to take this opportunity to express our gratitude to them. Our sincere thanks first go to all the contributors for their contributions and for their cooperation, and, in particular, to Jin Ma and Yuncheng You for their thoughtful article: "A Tribute in Memory of Professor Xunjing Li on His Seventieth Birthday." Our special thanks also go to the World Scientific staff and, in particular, to Editor

Ms E. H. Chionh and Kim Wei Lee for their cooperation and kind patience in bringing out this volume in a timely fashion.

Finally, we would like to take this opportunity to recognize the special role played by Liwan Liu, Professor Xunjing Li's wife, whose long term support and influence to Professor Xunjing Li was extremely significant. We express to her our special gratitude for her presence at the workshop. The publication of this volume is supported by the National Basic Research Program of China (973 Program) with Grant No. 2007CB814904, which is greatly appreciated.

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