Preface

As noted by Pólya (1967), "Inequalities play a role in most branches of mathematics and have different applications." This is certainly true in statistics and probability. Applications of stochastic inequalities can be found in statistical inference, multivariate analysis, reliability theory and queueing theory, constituting an integral part of statistical research.

On the other hand, the theory of stochastic inequalities has intrinsic interest and importance and need not rely solely upon specific applications. The general study of stochastic inequalities is, of course, closely related to the developments of inequalities in mathematics. As Mitronović (1970) pointed out, although "the theory of inequalities (in mathematics) began its development from (the days of) C. F. Gauss, A. L. Cauchy and P. L. Cebysev," it is "the classical work *Inequalities* by G. H. Hardy, J. E. Littlewood and G. Pólya (1934, 1952) ... which transformed the field of inequalities from a collection of isolated formulas into a systematic discipline." During the past two decades, research activities on stochastic inequalities have been growing at an accelerated rate. In addition to the publication of many important research papers, several research monographs and books in this area have become available (e.g., Karlin (1968), Barlow and Proschan (1975), Marshall and Olkin (1979), Tong (1980, 1984), Eaton (1987), Dharmadhikari and Joag-Dev (1988), Block, Sampson and Savits (1990) and Mosler and Scarsini (1991)).

The conference "Stochastic Inequalities" (held in July 1991 in Seattle, Washington as one of the 1991 AMS–IMS–SIAM Joint Summer Research Conferences) focused on the recent developments in the theory and applications of stochastic inequalities with special emphasis on the following topics:

(a) Convexity-related, majorization-related inequalities and stochastic convexity,

(b) Dependence-related probability and moment inequalities,

(c) Optimal stopping-related and prophet inequalities,

(d) Inequalities in multivariate distributions and multivariate analysis,

(e) Inequalities in reliability theory and queueing theory,

(f) Applications in business and economics, operations research, and other related areas.

This volume is a collection of papers which are based on the lectures given at that conference.

All the papers submitted were subjected to intensive refereeing, in most cases each paper was carefully read by two referees. Based on the referees' input, and space limitations, not all the papers submitted were accepted for publication. We thank all authors and conference participants for their notable contributions. We also owe a debt of gratitude to the conscientious referees, and a list of the referees can be found on p. vii of this volume.

We are particularly thankful to Morris L. Eaton who handled the refereeing process for the paper that we submitted, and to the anonymous referees who commented on it.

The Organizing Committee comprised of J. H. B. Kemperman (Rutgers University), Albert W. Marshall (University of British Columbia) and Frank Proschan (Florida State University), to whom we are grateful. Special thanks go to Ingram Olkin (Stanford University) who strongly encouraged us to go on with the organization and was very helpful throughout the various stages of this venture. The financial support for this meeting was provided by the National Science Foundation through the American Mathematical Society, and we thank the AMS Conferences Department for hosting this conference and for the fine logistic arrangements.

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