

PREFACE

Daniel W. Stroock and Srinivasa S.R. Varadhan are two of the most distinguished probabilists of our time. They made fundamental contributions in probability theory, partial differential equations, infinite dimensional analysis and non-equilibrium statistical physics. Not only did they lay solid foundations for the martingale theory, Malliavin Calculus and large deviations, they have successfully applied these theories to solve many outstanding problems in fluid mechanics, statistical physics, and quantum physics. In recognition of their work on the martingale formulation of Markov processes, the American Mathematical Society honored them with the Steele Prize in 1996.

Born in New York city in 1940, Stroock received his bachelor's degree from Harvard in 1962 and his Ph.D. degree from the Rockefeller University in 1966, under the supervision of Mark Kac. He started his career at the Courant Institute of New York University where the joint work with Varadhan on the martingale problem took place. He moved to Colorado in 1972 where he began the pioneering work on interacting particle systems with D. Holley. He moved to MIT in 1984 and has stayed there since. Together with R. Holley and B. Zegarliński, Stroock introduced a powerful tool, the logarithmic Sobolev inequality, to the study of interacting particle systems and solved the fundamental problem on the relaxation to equilibrium of these systems. Partly with Kusuoka, Stroock clarified many key aspects of the Malliavin Calculus and applied it to various problems in probability, analysis and geometry. Stroock was elected to the American Academy of Art and Science in 1993 and the National Academy of Science in 1995.

Varadhan was born in Madras, India in 1940. He received his bachelor's degree from Madras University in 1959 and Ph.D. degree from the Indian Statistical Institute in 1963. Varadhan arrived at Courant Institute in the Fall of 1963. Between 1966 and 1972, he developed the martingale formulation of the Markov processes with Stroock. During the next decade, M. Donsker and Varadhan formulated the modern theory of large deviations and applied it to solve many outstanding problems including the Wiener sausage and the polaron problem. Later on, partly in collaboration with G. Papanicolaou, Varadhan introduced the entropy and the non-gradient system methods to the study of interacting particle systems. Varadhan is an elected member to the American Academy of Art and Science, National Academy of Science, Third World Academy of Sciences, the Institute of Mathematical Statistics and The Royal Society. He received the the Sokol Award from the New York University in 1995 and the Birkhoff Prize from the American Mathematical Society and SIAM in 1994.

Stroock and Varadhan have strongly influenced probability theory for several decades and have inspired succeeding generations of probabilists. In this issue, we collected several articles from their students, postdoctors and collaborators to celebrate their sixtieth birthday. We wish Dan and Raghu a happy birthday and many more productive years.

Editors of MAA