

Preface: In Memory of Dr. Zhou Xianyin

Dr. Zhou Xianyin had accomplished more than fifty papers on the fields such as probability theory, quantum fields and fractal theory. He solved a number of remarkable, highly difficult problems, and in particular the conjectures proposed by E. Nelson, J. Westwater, J. Rosen, S. Taylor et al in probability theory and mathematical physics. These problems include, for example, the relation of Westwater processes and three-dimensional Brownian motions, the construction of diffusion processes on fractals, the construction of three-dimensional polymer measures for all coupling constants and the sharp estimates of the intersections of random walks and Brownian motions in four-dimension. His abstruse results and systemic works had made strong international influence. He was invited to make reports in several international academic conferences and also to collaborate or to present reports at Kyoto University (Japan), Zürich University (Switzerland), University of Bielefeld (Germany), Newton Institute of Mathematics at Cambridge University and Edinburgh University (United Kingdom). During the six years after he obtained his Ph.D. degree, Dr. Zhou Xianyin had successively awarded six research funds, including the National Nature Science Foundation, the State Ministry of Education Foundation for Returned Oversea Scholars (China), the Alexander von Humboldt Foundation (Germany), German Society of Science Foundation, Japan Society for the Promotion of Science, Ying-Tung Fok Educational Foundation for Young Teachers at Universities or Colleges (China). He was also awarded the first-grade prize for young teachers by Ying-Tung Fok Educational Foundation and the prize of excellent composition for young teachers at Beijing Normal University.

The death of Dr. Zhou Xianyin shocked the international probability circles. Many specialists and research groups from Germany, America, Japan, Holland, Switzerland, Hungary, Canada as well as China sent the telegrams of condolence. The famous British-American mathematician Professor J. Taylor recalled his reference letter written December 20, 1989: "I have just returned from 7 weeks spent in P. R. China. I was most impressed with the quality of Ph.D. students in several of the

Universities I visited. But the most outstanding one was Mr. Zhou Xianyin, working under Professor Yan at Beijing Normal University. In fact, I do not believe I have ever known a Ph.D. candidate in any branch of mathematics or any country of the world who has shown at this early stage such breadth of interests and strength of original results obtained". The famous Japanese probabilist Shigeo Kusuoka wrote in the lament: "I hoped that Zhou Xianyin will build a new world in the probability theory". On April 29, 1996, the solemn funeral ceremony was held in the master cemetery in Bochum, more than seventy scholars and relatives were presented. On the ceremony, Professor Sergio Albeverio made the lament on behalf of University of Bochum; Professor Chen Mufa gave the lament on behalf of Beijing Normal University; the Union of Chinese students and scholars in Bochum presented the lament on behalf of the Chinese students, scholars and all Chinese people in Bochum District; Professor S. Spallek, the director of Department of Mathematics at University of Bochum, also make a speech on the ceremony.

To commend the outstanding contributions of Dr. Zhou Xianyin, a series of memorial activities have been held or been arranged in the past five years. In 1998, a special memorial lecture was arranged for the "25th Conference on Stochastic Processes and Their Applications", held in America (Dr. Zhou was scheduled to be an invited speaker). In the same year, a foundation named "Zhou Xianyin's Mathematical Prize for Youth" was created in Department of Mathematics at Beijing Normal University, based on a fund raised by the donation of Professor Zhang Fuzheng and other overseas scholars and in other manners. Recently, Professors Sergio Albeverio, Chen Mufa, Ma Zhiming and Michael Röckner will hold an international academic workshop in memory of Dr. Zhou Xianyin. Now, the Beijing Normal University Press subsidizes the publication of the two-volume book "Collection of Papers by Zhou Xianyin", which will reveal the full view of the scientific contributions by Dr. Zhou.

This book has collected almost all papers by Dr. Zhou Xianyin, except his three earlier papers written in Chinese. The list of all his papers is placed at the end of the book. We would like to thank Professor Zhang Yuhui and his wife Zhou Wenchuang for their careful edition of the book, and also thank Wang Feng, Zhao Xiaoliang, Yao Liang, Deng Pingji, Zhang Qizhi, Wu Jingjing, Zhang Huayun, Shao Jinghai, Zhang Weiyi and Zhang Na for their burdensome proofreading. Finally, we acknowledge Dr. Zhou's cooperators for their many helps and Beijing Normal University Press for its energetic supports.

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September 25, 2001
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