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Preface

Special issues (memorial issues) for Professor Ky Fan (樊士畿, September 19, 1914—March 22, 2010)

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Professor Ky Fan was a prominent Chinese-born American mathematician. Although he passed away more than a decade ago, he is still greatly missed by his students, friends, and colleagues. It is our sincere hope that the special issues would help us celebrate again the life and work of Ky Fan.

Ky Fan received his B.S. degree from Peking University in 1936 and D.Sc. degree from the University of Paris in 1941 under the supervision of Maurice René Fréchet. His doctoral dissertation is entitled “Sur quelques notions fondamentales de l'analyse générale”.

Ky Fan was a member of the Institute for Advanced Study in Princeton (1945-1947) and held positions at the University of Notre Dame, Wayne State University, and Northwestern University before joining the Department of Mathematics at the University of California, Santa Barbara (UCSB) in 1965. Ky Fan was recruited [6] by the late Professor Marvin Marcus, then the Mathematics Department Chair at UCSB and Ky Fan retired in 1985 as Professor Emeritus of Mathematics. Ky Fan was passionate about mathematics. After retirement from UCSB, he continued to publish papers well into his eighties.

Ky Fan made fundamental contributions to operator and matrix theory, convex analysis and inequalities, linear and nonlinear programming, topology and fixed point theory, and topological groups. His results found applications in mathematical economics and game theory, potential theory, calculus of variations, and differential equations. Many results were named after him, for example, Ky Fan norms, Ky Fan inequality (involving the geometric mean and arithmetic mean), Ky Fan inequality in game theory, Ky Fan lemma, Ky Fan Minimax Theorem, and Ky Fan Dominance Theorem.

Several years after Ky Fan's retirement, Professor Rugang Ye (叶如钢) joined the Department of Mathematics at UCSB after his postdoc at Stanford University. Ky Fan still had an office in the Department. They quickly became very good friends, both professionally and personally.

We are thankful to Professor Ye for the biography of Ky Fan in the special issues, which allows us to know more about Ky Fan.

Ky Fan was elected a member of the Academia Sinica (Taiwan) in 1964 and served as Director of the Institute of Mathematics for two terms (1978—1984). After receiving his Ph.D. in Mathematics from Yale University, Professor Jyh-Hao Lee (李志豪) joined the Institute in 1983 and was well acquainted with Ky Fan. We are thankful to Professor Lee's reminiscence on Ky Fan in the special issues.

Ky Fan and his wife Yu-Fen Yan (燕又芬) greatly cared about mathematics development in China. Shortly before the death of Yu-Fen Yan on December 23, 1999 [2], they made a gift of \$1 million to the American Mathematical Society (AMS) to establish the Ky and Yu-Fen Fan Endowment with the intent to foster collaborations between Chinese mathematicians and mathematicians in other parts of the world, especially North America [5]. Currently, the fund generated by the endowment supports the “China Exchange Program” of AMS.

In addition to the biography written by Professor Ye for the special issues, the readers would be able to learn more about Ky Fan from his Ph.D. student Professor Bor-Luh Lin (林伯禄, graduated from Northwestern University) [3, 4], his Ph.D. student Dr. Chuankuan Yuan (袁传宽, graduated from UCSB) [7, 8], his colleague Professor Jiguang Bao (保继光) at Beijing Normal University (BNU) in China [1], Professor Fuzhen Zhang (张福振) of Nova Southeastern University in Florida, USA [9]. Ky Fan was an Honorary Professor of BNU and Yu-Fen Yan was an alumna of BNU from which she received her B.A. in Chinese in 1933 [1].

Ky Fan is survived by his second wife Xiaoxia Wang (王晓霞), currently residing in Santa Barbara. Both Ky Fan and Yu-Fen Yan were preceded in death by their three sons (their only children) who unexpectedly passed away in the countryside of Chongqing, China in 1946, shortly after the Second Sino-Japanese War [2].

We would like to thank Professor Zhang for introducing Professor Ye of UCSB and Professor Gongning Chen (陈公宁) of BNU to us. Professor Chen was a visiting scholar of Ky Fan in 1980-1982 and we are grateful to him for many personal stories and mathematical achievements of Ky Fan.

Finally, we would like to take this opportunity to thank all the contributors and reviewers for their work on the special issues.

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