

Preface

Two years ago David Bao, Zhongmin Shen and I published a book on Riemann-Finsler geometry through Springer Verlag. Riemann-Finsler geometry is not a generalization of Riemannian geometry. Riemann knew and began with the general case. He saw the main features of Riemannian geometry and remarked that the general case does not involve new ideas.

In this assessment he was only partially correct. It certainly cannot include global problems. In local problems these are also subtleties, which need manipulation.

The aim of this book is to provide an elementary account of Finsler geometry to show that Finsler geometry is essentially not more difficult. Such an account is desirable, as Finsler metrics have come up in many applications.

I am ashamed to say that Shen actually wrote the whole book, although the idea of the book originated from me. The manuscript was written at least five times and I am impressed by its clarity and simplicity. I went through it in a seminar but do not wish to evade any responsibility if mistakes are found.

S.S. Chern
January 2003

At the end of 2001, I visited S.S. Chern at Nankai Institute of Mathematics in Tianjin, P.R. China. During my visit, Chern told me that he wished to have a concise book written for graduate students and young geometers who are interested in Riemann-Finsler geometry. The primary goal is to introduce some basic concepts, examples, theorems and to bring the readers to the most current research areas in Finsler geometry. We had a thorough discussion on topics and I started to collect some materials for the manuscript. Soon I realized that it is very difficult to write such a book. There is no simple proof for some important examples and theorems. Often times, the computation has to be carried out using a computer program such as MAPLE.

Since the winter of 2001, I have been meeting Chern twice a year at Nankai Institute of Mathematics to work on our book project. The first draft of the manuscript was completed in the summer of 2002. However, I continued to make changes based on my discussion with Chern and comments from our colleagues. Chern wanted to check all the details by himself. Thus the submission of the manuscript was postponed for several times.

On December 3, I was stricken with the saddest news from my colleagues that S.S. Chern was no longer with us. Personally, I lost a great advisor. Without Chern's support and encouragement throughout the last decade, I would not have done any work in Finsler geometry.

I would like to take this opportunity to thank X. Chen, L. Kozma, X. Mo, C. Robles, H. Shimada, and G. C. Yildirim for their valuable comments.

Zhongmin Shen
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