

Preface

In 2019, mathematicians around the world celebrated the 70th birthday of Professor Shing-Tung Yau and expressed their appreciation and admiration. A number of conferences were held throughout the year for this special occasion: at Harvard University (May), at the University of Rome (May/June), at the Chinese University of Hong Kong (June), at the 8th ICCM Congress at Tsinghua University (June), at Lehigh University (November), and elsewhere.

This is the first of the two volumes consisting of articles by speakers at those special conferences. The articles in this volume include: Werner Ballmann, “Bottom of spectra and coverings”; Robert J. Berman, “An invitation to Kähler–Einstein metrics and random point processes”; Duong H. Phong, “Unification of the Kähler–Ricci and anomaly flows”; Cumrun Vafa, “SCFTs, holography, and topological strings”; Stephen S.-T. Yau, “Recent results on k -th Yau algebras over simple elliptic singularities \tilde{E}_6 ”; Kefeng Liu, “Global methods of solving equations on manifolds”; Chuu-Lian Terng, “The geometric airy curve flow on \mathbb{R}^n ”; and Valentino Tosatti, “Collapsing Calabi–Yau manifolds.”

We would like to thank all the distinguished speakers who presented wonderful talks at the conferences, especially those who contributed to this volume (and to the upcoming volume) of Surveys in Differential Geometry. We are also very grateful to all the organizers and the scientific committee members of the conferences for their great efforts: Wilfried Schmid, Clifford Taubes, Cumrun Vafa, and Horng-Tzer Yau for the Harvard conference; Simone Diverio, Gabriele Mondello, Emanuele Spadaro, Jun Li, and Valentino Tosatti for the Rome conference; Conan Nai Chung Leung, Kwok Wai Chan, Po Lam Yung, and Jun Zou for CUHK conference; Shiu-Yuen Cheng and Si Li for the Tsinghua conference; Andrew Harder, David Johnson, Terry Napier, Rob Neel, and Xiaofeng Sun for the Lehigh conference.

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