

Preface

This is the first special issue of Bulletin of the Institute of Mathematics Academia Sinica which honors Professor Tai-Ping Liu on the occasion of his 70th birthday.

Professor Liu is an analyst with physical insight to penetrate the mathematical nature of problems; he is a teacher with wisdom to guide his students and young collaborators; he is a friend with a heart to listen to you; and he is a good citizen of the community to promote research culture in the field and in his country.

He had made important contributions in hyperbolic conservation laws such as the deterministic Glimm scheme, admissibility criteria, transonic flows, L^1 well-posedness of hyperbolic conservation laws, and multi-D shock wave theory. In viscous conservation laws he introduced the diffusive wave and initiated pointwise estimates by Green's functions to study shock layer stability. He also navigated from the field of hyperbolic conservation laws to the Boltzmann equation, proved that the shock wave for the Boltzmann equation is a positive-valued distribution function, and resolved Sone's bifurcation problem of the boundary value problem for the Boltzmann equation.

As Professor Liu's students we are very grateful to the Institute of Mathematics, Academia Sinica for proposing us to edit this special issue in his honor. We are happy to accept this difficult mission to acknowledge our teacher for his very impressive life-time contribution to the field in partial differential equations and his service to the international mathematical society. We are also in great debt to his friends and colleagues for contributing their research papers in this special issue to share this special occasion. It is our honor here to celebrate Professor Tai-Ping Liu 70th in this special issue.

We all also look forward to many more contributions from Prof. Tai-Ping Liu himself.

Guest editors,

Volker Elling, Seung Yeal Ha and Shih-Hsien Yu.



Tai-Ping Liu