

## Preface to Chi-Wang Shu special issue

This issue is dedicated to Professor Chi-Wang Shu on the occasion of his 60th birthday.

Professor Chi-Wang Shu was born on January 1957 in China, and studied mathematics at the University of Science and Technology of China. In 1986, he received his Ph.D. degree in Mathematics from the Mathematics department of the University of California at Los Angeles with Professor Stanley Osher as his advisor. He then spent a year at the Institute for Mathematics and Its Applications (IMA) in University of Minnesota as a postdoctoral fellow. Since 1987 he has been with the Division of Applied Mathematics, Brown University, as an Assistant Professor (1987-91), Associate Professor (1992-96), Professor (1996- ), Chairman (1999-2005), and Theodore B. Stowell University Professor (2008- ).

Chi-Wang Shu is world-famous for his distinguished and original contributions to Scientific Computing and Numerical Analysis, especially in developing high order accuracy numerical methods. His pioneering work in the field includes essentially non-oscillatory (ENO) methods and weighted ENO (WENO) methods, discontinuous Galerkin (DG) methods, spectral methods, total-variation-diminishing (TVD) temporal discretization, and their applications in computational fluid dynamics, semi-conductor device simulations, computational cosmology, etc.

Professor Shu's pioneering academic work has had a great impact on scientific computing and been recognized by many prestigious awards and honors. In 1992 he received the "NASA Public Service Group Achievement Award" for the pioneering work in Computational Fluid Dynamics as part of the ICASE algorithm team. In 1995 he received the first "Feng Kang Prize" of Scientific Computing from the Chinese Academy of Sciences. Since 2004 he has been listed as an "ISI Highly Cited Author in Mathematics" by the ISI Web of Knowledge, Thomson Scientific Company. In 2007 he received the "SIAM/ACM Prize in Computational Science and Engineering" (SIAM/ACM CSE Prize). In 2009 he was selected as one of members of the inaugural class of Fellows of the Society for Industrial and Applied Mathematics (SIAM). In 2012 he was selected as a member of the inaugural class of Fellows of the American Mathematical Society (AMS). In 2014 he was an invited 45-minute speaker in the International Congress of Mathematicians (ICM) in Seoul.

Besides his high-impact and distinguished work, Professor Shu also made tremendous contributions in professional services. He is the Chief Editor of

the Journal of Scientific Computing, the Co-Chief Editor of Methods and Applications of Analysis, the Co-Chief Editor of Annals of Mathematical Sciences and Applications, and a member of the editorial boards of Mathematics of Computation; Journal of Computational Mathematics; Acta Mathematicae Applicatae Sinica; Science China Mathematics; International Journal of Numerical Analysis and Modeling; Pure and Applied Mathematics Quarterly; Communications in Computational Physics; SEMA Journal; Advances in Water Resources; Journal of Mathematical Research with Applications; ESAIM: Mathematical Modelling and Numerical Analysis ( $M^2AN$ ); Journal of Computational Physics; Communications in Mathematics and Statistics; Geometry, Imaging and Computing; and Applications of Mathematics. He is the former Managing Editor of Mathematics of Computation (2002-2012), the former Co-Chief Editor of Geometry, Imaging and Computing (2014-2017), and a former editor of the SIAM Journal on Numerical Analysis, Chinese Journal of Computational Physics, Journal of Hyperbolic Differential Equations, Communications in Applied Analysis, and Computational Fluid Dynamics Journal. Between 1989 and 2002 he was a consultant at the Institute for Computer Applications in Science and Engineering (ICASE), NASA Langley Research Center. He has also been a Guest Professor (since 1995) and a Changjiang Lectureship Professor (2000-2002) of the Department of Mathematics of the University of Science and Technology of China, an Honorary Professor of Department of Mathematics, Hong Kong Polytechnic University (2014-2018), a former Overseas Assessor of the Chinese Academy of Sciences, and Guest Professor of many Universities in China. Another significant contribution made by Professor Shu to the scientific community is mentoring and supporting junior researchers. He has advised more than 50 Ph.D. students, and mentored many junior colleagues, including postdocs, visiting scholars, junior faculty and collaborators.

On the occasion of the sixtieth birthday of Professor Chi-Wang Shu, the editors of PAMQ decided to publish a special issue in his honor. We hope that the special issue conveys a sense of the great impact of his work, as well as the deep admiration and respect of his fellow mathematicians towards him.

Editorial Board of this special issue:

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