Forward

Tatsien LI Fanghua LIN Guiqiang CHEN Xiaoming WANG

Professor Andrew Majda is one of the most prominent applied mathematicians in the world. He is well-known for both his seminal theoretical contributions to partial differential equations and his diverse and fundamental contributions to many applied areas such as scattering theory, shock waves, combustion, incompressible flow, vortex motion, turbulent diffusion and atmosphere ocean science. In the course of his remarkable scientific career, Prof. Majda has written more than 200 papers and 5 books, which have been cited nearly 6000 times; in particular, 100 papers published within the last 10 years have been cited nearly 2000 times. A great deal of his work is groundbreaking and now forms part of the core of knowledge of the corresponding areas. Well-known examples include his work on multi-dimensional shock front existence and stability, his work with Engquist on absorbing boundary conditions for the simulations of waves, his work with Beale and Kato on the breakdown of smooth solutions for the 3D Euler equations, his work with Timofeyev and Vanden-Eijnden on stochastic model reduction, and his recent work with Klein, Khouider, Biello and Stechmann on multi-scale modeling of waves in the tropics. His books are popular and influential, and many have become modern classics that can be found on bookshelves throughout the world. Besides the amazing breadth and depth of his work, an important feature of his research is the masterful blend of asymptotic methods, numerical methods, physical reasoning and rigorous mathematical analysis in order to tackle problems of physical significance. Much of his work is frequently cited by practitioners in applied fields.

He began his scientific career as a Courant Instructor at the Courant Institute from 1973 to 1975. Prior to returning to the Courant Institute in 1994 as the Morse Professor of Arts and Science, he held professorship positions at Princeton University (1984-1994), the University of California at Berkeley (1978-1984), and the University of California at Los Angeles (1976-1978). During the past several years at the Courant Institute, Majda founded the Center for Atmosphere Ocean Science, which has a multi-disciplinary faculty that aims to promote cross-disciplinary research along with modern applied mathematics in climate modeling and prediction.

Majda has been awarded numerous honors and prizes recognizing his seminal contributions to both pure and applied mathematics. He is a member of the National Academy of Sciences and has received the National Academy of Science Prize in Applied Mathematics, the John von Neumann Prize of the Society for Industrial and Applied Mathematics, and the Gibbs Prize of the American Mathematical Society. He has twice been awarded the Medal of the College de France and is a Fellow of the Japan Society for the Promotion of Science. He recently received an

honorary professorship from Fudan University, one of the most prestigious universities in China. He has also delivered very many major invited plenary talks at prestigious gatherings such as the First International Congress of Industrial and Applied Mathematics in Paris, the International Congress of Mathematicians in Tokyo, the SIAM von Neumann Lecture in Chicago, and the AMS Gibbs Lecture in San Francisco.

Prof. Majda has touched upon the scientific lives of many of us through collaboration, mentorship, and/or his influential and varied work. We very much cherish his friendship. Prof. Majda is committed to promote and advance applied mathematics in China through his collaborative research and training project at Fudan University. In January of this year, friends and colleagues of Prof. Majda gathered at Fudan University for the *International Conference on Contemporary Applied Mathematics* to celebrate his 60th birthday. This issue (Number 5) and the next issue (Number 6) of Chinese Annals of Mathematics are dedicated to that occasion and are collections of manuscripts by the speakers who were invited to the conference. We hope that this issue will showcase contemporary applied mathematics as exemplified by Prof. Majda's work, and we look forward to another special issue 10 years from now celebrating even more amazing accomplishments by Andrew Majda.