Preface

This special issue of CMS is dedicated to Andy Majda, one of the most prominent and outstanding applied mathematicians in the world. Andy has made seminal and fundamental contributions both to the theory of partial differential equations as well as to many applied areas including but not limited to scattering theory, shock waves, combustion, incompressible flows, vortex motion, turbulent diffusion, combustion, and atmosphere ocean science. He has authored or co-authored in excess of 200 papers and has written five books. The papers are highly cited and the books have become classical references.

In almost all the areas that he concentrated on, Andy Majda made groundbreaking modeling, mathematical, and computational work, which have become part of the basic and classical theory. An inclusive but by no means exhaustive list of the areas that Andy Majda left his mark are multi-dimensional shock front existence and stability, absorbing boundary conditions for the simulations of waves (work with Engquist), breakdown of smooth solutions for the 3D Euler equations (work with Beale and Kato), concentrations and weak solutions for vortex sheets (joint with DiPerna), stochastic model reduction (work with Timofeyev and Vanden-Eijnden), turbulent diffusion (work with Avelaneda), turbulent reaction-diffusion and combustion (work with Souganidis), and, more recently, multi-scale modeling of waves in the tropics (work with Klein, Khouider, Biello and Stechmann).

Andy Majda came up from a very modest background. His undergraduate degree was from Purdue University and his Ph.D. from Standord under the supervision of Ralph Phillips. He began his professional carreer at the Courant Institute as an Instructor from 1973 to 1975. He then moved to UCLA (1976-1978) and from there to Berkeley as a Professor (1978-1984). The next stop was Princeton (1984-1994) from where he moved back to the Courant Institute in 1994 as the Morse Profes-