

Preface

The 2005 GFD program was entitled "Fast Times and Fine Scales" with a focus on asymptotic and stochastic modeling methods that exploit a physical scale separation of some kind. An extremely strong application pool resulted in the appointment of the unusually large class of eleven GFD Fellows for the summer. The first week consisted of principal lectures from Joe Keller on waves in fluids, ray methods, and a variety of applications. The second week was divided between Eric Vanden-Eijnden's lectures on Brownian motion and stochastic differential equations, and George Papanicolaou's lectures on variational principles and asymptotic methods in homogenization theory. The principal lectures were particularly well-attended but the lecture room at Walsh Cottage proved up to the task of accommodating the full audience.

Research lectures by staff and visitors were delivered daily throughout the program addressing topics ranging from applications of multiscale modeling methods in ocean and atmosphere dynamics, to applications of stochastic methods in populations dynamics and chemical kinetics, to applications of homogenization theory in materials science and engineering. The program also included a popular public lecture on the timely subject of tsunamis. As usual this summer ended with the Fellows' reports including two experimental projects and theoretical work on a variety of problems inspired by the summer's research theme.

Oliver Bühler and Charlie Doering acted as co-Directors for the summer. Janet Fields, Jeanne Fleming and Penny Foster provided the administrative backbone for the program. Keith Bradley supplied technical support, and Matt Finn ran the computer network and graciously helped with the production of the summer's proceedings volume. As always we are grateful to Woods Hole Oceanographic Institution for the use of Walsh Cottage, the perfect setting for the GFD program.