Journal of Statistical Physics, Vol. 93, Nos. 3/4, 1998

Preface

It gives us great pleasure to dedicate this issue of the *Journal of Statistical Physics* to our wise friend, colleague and teacher, Leo P. Kadanoff, one of the major figures in statistical mechanics. Leo, whose sixtieth birthday we celebrate with this volume, has made major contributions to the fields of statistical physics, turbulence and chaos. He has also, through his teaching, mentoring and example, provided the inspiration for many young people to go forward in their own adventure in physics and science.

Leo Kadanoff is a native of New York City and attended the famed Bronx High School of Science. He received his higher education at Harvard University where his thesis advisors were Roy Glauber and Paul Martin. From there he went on to do postdoctoral work at the Bohr Institute in Copenhagen. Out of this period came his well-known book with Gordon Baym, *Quantum Statistical Mechanics.*

Leo's first faculty appointment was at the University of Illinois, where he rapidly rose through the ranks to Professor. From this time came his work on scaling in critical phenomena which is one of the seminal contributions to this subject. It showed great physical insight as well as an ability to cut to the heart of a problem and extract its mathematical essence. These traits became and continue to be characteristic of Leo's work.

From Illinois Leo went to Brown University where, in addition to his work on critical phenomena and the renormalization group, he delved into urban studies and social systems. Here he proved that the solution of these problems are beyond the reach of the pure natural sciences. The insights gained from these studies into complex systems were probably instrumental in Leo's next phase in which he turned his attention to chaotic dynamical systems including singular and turbulent hydrodynamical flows. This work is very much alive and flourishing at the present time at the University of Chicago where Leo moved in 1978.

In Chicago Leo has created a model of what a center for the study of science should be. With himself as intermediary he has brought together some of the best minds in the mathematical, theoretical and experimental

0022-4715/98/1100-0407$15.00/0

areas. The results have been substantial and are continuing. Particularly noteworthy is the work on the multi-fractal dimension spectrum of dynamical systems and on Hele-Shaw cells.

Leo's influence on science and on the scientific community are profound and broad. The many original ideas he contributed to a wide variety of scientific fields—in particular the ideas of scaling and universality —helped shape contemporary physics. His passion for science and his distinct scientific style have been a great inspiration to all of us and will continue to influence generations to come.

We are sure that we speak on behalf of the whole statistical mechanical, indeed the whole scientific, community in wishing Leo a long, happy, healthy and productive life.

Joel L. Lebowitz
Jack Swift
Chao Tang