
ACKNOWLEDGEMENTS

This book has emerged as a result of experimental and theoretical researches conducted at the Department for Physical Mechanics, Moscow Physical and Technical Institute, and in the Institute for Hydrodynamics of the Siberian branch of the USSR Academy of Science by teams headed by Corresponding Member of the Academy V.M. Ievlev and Academician S.A. Khristianovich since 1965 till the present time. Problems of numerical modeling were developed jointly with the school of Academician O.M. Belotserkovsky. This book could not have been written without many years of support and a lot of dramatic discussions on various problems provided by those eminent Teachers to whom we bring our endless gratitude. Particular fragments of the book were discussed with turbulence experts G.I. Barenblatt, A.A. Paveliev, A.S. Prudnikov, M.M. Prudnikov. Problems of hydrodynamics and turbulence in multiphase media were discussed with R.I. Nigmatullin, K.Besson, whom we also are deeply thankful.

Many pieces of this work were reported to and discussed with our foreign colleagues. We are grateful to the creator of the $k-\varepsilon$ model and a prominent mechanical scientist of our day, Frank Harlow from Los Alamos, for his support, benevolent reviewing, discussions on papers on the spectral theory of turbulence which he made available to us; to Leslie Bromberg and Richard Petrasso from the MIT Plasma Science and Fusion Center (Massachusetts, USA) who made it possible for us to get familiar with turbulence researches conducted in the USA; to Oleg Schilling (once a postgraduate and now Chairman of the International Committee on Turbulent Mixing) for the chance to present our results at Columbia University and at the Center for Turbulence Research of Stanford University; to the director of the Center, P. Moin; to two outstanding heads of DAMPT at Cambridge, G. Bachelier and K. Moffatt, for their discussions on works in the field of turbulence in shear flows and under electromagnetic forces.

In addition, we would like to thank our fellow researchers in the hot-wire measurements of the correlation and spectral functions in a turbulent flow: P.G. Zaets, N.A. Safarov, Y.B. Markov, M.M. Pilipchuk, and M.V. Sadovsky.

This publication has been supported by the Russian Fund for Fundamental Research, the “Universities of Russia” programme of the Ministry of Education of Russia, an interdisciplinary programme of the Ministry of Nuclear Energy and the Ministry of Education of Russian Federation, a project of the CRDF fund jointly with the Ministry of Education (RMO-011) and the Schlumberger company.