

PREFACE: ELECTROHYDRODYNAMICS AND GAS–FLUID INTERFACE PHENOMENA INCLUDING BUBBLES, DROPLETS, SPRAYS, AND MIXING

Academician Eduard Son, a leading expert in plasma physics, heat transfer, and fluid mechanics, passed away on August 17th, 2021 after a short illness. His contributions to science include over 200 research articles and recognition by many awards and election as Full Member (Academician) of the Russian Academy of Sciences in 2016. Professor Son was a talented educator and a mentor to many doctoral students. For more than fifteen years, he served as Deputy Rector at the Moscow Institute of Physics and Technology. The present memorial special issue of *Interfacial Phenomena and Heat Transfer* was prepared by his colleagues to honor Professor Son. The title and contents of this issue reflect the remarkable breadth of Professor Son's scientific interests which include plasma physics, thermophysics, mechanics of multiphase and non-Newtonian fluids, electrohydrodynamics, computational methods, and turbulence modeling. A detailed account of Professor Son's scientific accomplishments, as well as many biographical details, can be found in the article of N.A. Kupershtokh, which closes the special issue. The introductory paper is followed by the study of liquid jet of a conducting fluid in external electrical field by O.V. Zubareva et al. They find equilibrium solutions based on the balance of capillary and electrostatic forces and identify conditions when such solutions do not exist. A.A. Vasil'ev presents a combined experimental and numerical study of detonation waves and discussion of their stability. A review of transport properties of nanofluids by V.Y. Rudyak covers such topics as determination of nanofluid viscosity and thermal conductivity as functions of particle concentration, shape, and size, the effects of surfactants, and the specific features of nanofluids containing single-wall carbon nanotubes. Y. Akishev reports a study of the effects of electrical discharges on large floating air bubbles, contrasting the behaviors for situations when the liquid phase is water or oil. Finally, the work of S.M. Korobeynikov et al. deals with emulsion of water in oil subject to external electrical fields and investigates the conditions of formation of water bridge between the electrodes as a result of strong droplet deformations. We hope the readers of *Interfacial Phenomena and Heat Transfer* will find it useful to learn the new results in the diverse set of research areas covered by the special issue and that it will be a fitting tribute to the memory of a remarkable scientist, mentor, administrator, colleague, and friend to many of us, Professor Eduard Son.

Vladimir S. Ajaev
Southern Methodist University, USA

Sergey V. Alekseenko
Institute of Thermophysics, Russia

Ping Cheng
Shanghai Jiaotong University, China

Aleksey V. Dedov
Moscow Power Engineering Institute, Russia

Aleksandr S. Dmitriev
Moscow Power Engineering Institute, Russia

Oleg A. Kabov
Institute of Thermophysics, Russia

Alexander L. Kupershtokh
Institute of Hydrodynamics, Russia

Alexander I. Leontiev
National Committee on Heat and Mass Transfer, Russia

Dmitry M. Markovich
Institute of Thermophysics, Russia

Haruhiko Ohta
Kyushi University, Japan

Oleg F. Petrov
Joint Institute for High Temperatures, Russia

Aleksey Yu. Varaksin
Joint Institute for High Temperatures, Russia

Jinjia Wei
Xi'an Jiaotong University, China