
Dr. Jay Paul Boris

Chief Scientist U.S. Naval Research Laboratory



Dr. Boris plans and leads research on advanced analytical and numerical capabilities and their engineering application to solve problems vital to the Department of the Navy, the Department of Defense and the nation. His responsibilities include the development of applications for advanced computing architectures for parallel processing and the applied mathematics relevant to creating unique new solution methods.

Dr. Boris is a Charter Member of the SES (1979) and has been a member of the civil service for 42 years. He was Director of the Laboratory for Computational Physics and Fluid Dynamics, NRL Code 6400, from 1978 to 2011 when he converted to an ST position and attached as Chief Scientist, to the Laboratories for Computational Physics and Fluid Dynamics, NRL Code 6040. Dr. Boris joined the U.S. Naval Research Laboratory in 1970 as a Senior Consultant in the Plasma Physics Division and from 1975 to 1978 he was Head of NRL's Plasma Dynamics Branch. He received his BA degree in Physics (1964) and MA and PHD degrees in Astrophysical Sciences (1968) from Princeton University and then joined the Princeton Plasma Physics Laboratory before coming to NRL.

Dr. Boris is a member of the United States National Academy of Engineering and an internationally recognized technical authority and research leader in the fields of computational physics, fluid dynamics, reactive flow including turbulence and propulsion, the urban transport and dispersion of atmospheric contaminants relevant to civil defense, and plasma dynamics and magnetohydrodynamics for laboratory and space applications. His expertise is recognized around the world, as evidenced by society fellowships, numerous national and international awards, and invited lectures and prize lectureships. This recognition also results in requests for help and collaborations from U.S. and foreign universities, industries, government agencies and other NRL and Navy organizations. The high-fidelity simulation and design capabilities developed under his leadership have had a wide range of impacts, act as potentially transformational technology accelerators, and provide an important, inexpensive methodology to avoid technological surprise.

Dr. Boris has published approximately 400 papers and journal articles including three books and over a dozen book chapters and invited review articles. He co-authored *Numerical Simulation of Reactive Flow*, the first book on the applications of numerical methods to reactive flows, published by Elsevier, 1987; second edition published by Cambridge University Press, 2001. (Russian translation, 1991, published by Mir in the former Soviet Union.)

Dr. Boris has given over 100 invited or keynote presentations at professional society and international meetings on Computational Physics, Computational Fluid Dynamics, Reactive Flow, Detonations, and Urban Civil Defense Against Airborne Contaminants. For seven years he served as the DoD Computational Technology Area Leader for Computational Fluid Dynamics (CFD), participating in the initiation and execution of the scalable software development program. Dr. Boris has served on external review panels for the National Academy of Sciences and FOI, the R&D agency of the Swedish Department of Defense, and a number of U.S. Agencies and Laboratories including the Department of Energy and NASA. He is currently serving as a member of the National HPC Council Advisory Board.