

Preface

Physics of the Plasma Universe, Second Edition

Twenty years have passed since the printing of the first book on this topic, *Physics of the Plasma Universe*. As the first printing was soon exhausted, there became a need for a new printing or a new book. At this time, I had organized several IEEE sanctioned *International Workshops on Plasma Cosmology* and was hesitant to simply reprint the first book because of the growing amount of new data whose inclusion would enhance a second book. But with the cessation of all nuclear testing in July 1993, I was reassigned to the Department of Energy in Washington D.C., 1995–1999, where I was tasked in representation of Los Alamos, Sandia, and Livermore National Laboratories, experiments and simulations. Nevertheless, in spite of several exciting posts, International Conferences on *Plasma Cosmology* were held world-wide. Two new books were published, *Plasma Astrophysics and Cosmology*, Kluwer, 1995 and *Advanced Topics on Astrophysical and Space Plasmas*, Kluwer, 1997 as well as other research papers. In addition, Professors Alv Egeland and William Burke had published their book on *Kristian Birkeland, The First Space Scientist*, an edition filled with details as to how the study of space plasma came to be.

Over the decades we have been fortunate to have access to institutes possessing the fastest computers at the time: The Magnetic Fusion Energy Computational Center (MFECC), Lawrence Livermore National Laboratory, Los Alamos National Laboratory, NASA's Jet Propulsion Laboratory of the California Institute of Technology, Sandia National Laboratories, and support from the Mission Research Corporation, NASA's Goddard Space Flight Center, Greenbelt, Maryland, and the U.S. Air Force Office of Scientific Research, Virginia, whose encouragement proved invaluable.

Countering the growth of faster computers, better diagnostics, and nuclear research facilities has been the encroachment of those not schooled in plasma science, computer science, physics, astrophysics, or high-power electrical, pulsed energy, and nuclear engineering. Without exception they rail at barriers placed to insure sound scientific technique and methodology. In times past, their 'achievements' were limited to hand-written, mimeographed, or in-house notes. Peer-reviewed

papers in print in archived journals or even short letters in their town OpEd page were beyond their reach. However, now the internet or World Wide Web allows anyone, even cults, to present their cacaphony to the world, often citing unsuspecting researchers as ‘colleagues’ for false endorsement. As Hannes Alfven, Harold Urey, and myself, during our tenure at the New Astrophysics lectures at the University of California, San Diego, 1979–1981, said, ‘they deserve no attention’. Indeed, as if a topic of psuedoscience, the subject was never even raised.

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