

Dedication

This issue of the *Journal of Plasma Physics* is dedicated to David C. Montgomery, a pioneer in the subject of plasma physics, on the occasion of his 60th birthday.

Professor Montgomery's contributions to the field of plasma physics have served to define and shape the subject for almost 40 years. The overwhelming response by researchers in many diverse subfields of plasma physics who contributed articles to this special issue and the breadth of topics submitted to the journal on this occasion stands as a clear indication of the impact David Montgomery has had on the subject of plasma physics.

The author of 2 books and over 150 articles, David Montgomery has always sought to find new and better ways to characterize the plasma state. For many researchers David's book *Plasma Kinetic Theory* published with Derek Tidman in 1964 was the defining treatment of plasma physics from which whole careers have been derived. That one book, as much as any other, provided the plasma physics community with the ideas that now form the foundation of much of plasma theory. Later, his book *Theory of the Unmagnetized Plasma* published in 1971 provided a treatment of electrostatic theory that today supports a major component of the field.

While these books may represent the direction of David Montgomery's early efforts in plasma physics, his work since the mid-70's has focussed on turbulence theory as practiced by the fluids community and its application to nonlinear plasma physics. Specifically, he has concentrated on the general theory of turbulent magnetohydrodynamic flow. His work on MHD turbulence has found numerous applications within the space physics and astrophysics communities as well as the controlled fusion community. The theory of magnetofluid turbulence has evolved into a legitimate and active subdiscipline of plasma physics and David Montgomery's work along with the considerable body of work inspired by him has played a notable role in this development.

Throughout his career David has been a teacher, an educator and an inspiration to young physicists at many institutions. He has held faculty positions at the University of Maryland, University of Iowa, University of William and Mary, and is now the Eleanor and A. Kelvin Smith Professor of Physics at Dartmouth College. His visiting positions are too numerous to list here. Wherever he has been he has challenged the profession to look at plasma physics in new ways that reach beyond the linear and weakly nonlinear techniques that are so widely used in plasma physics today. This challenge has been so widely recognized by young physicists around the world that it is likely that the full impact of David's work will not be felt until another generation of physicists has risen to senior positions.

This special issue came about as a result of a proposal to the *Journal of Plasma Physics* put forward by Prof. Montgomery's former students: myself, Jill Dahlburg, Russell Dahlburg, Murshed Hossain, William Matthaeus and John Shebalin. The Senior Editor for the journal, Alan Cairns, enthusiastically endorsed the idea and asked Associate Editor Gary Zank to serve as editor for this occasion. A call for papers was published in the October 1995 and 33 papers were submitted. All submitted papers were subjected to the usual standards for publication and reviewed by external referees according to the normal practices of this journal.

It seems only reasonable that on this occasion the honoree should be permitted to speak his views on the subject of plasma physics, the state of the field, and his hopes for the future. This journal begins with those remarks which are followed by the papers contributed by various members of the

community on this occasion.

On behalf of the above individuals, this journal and all who contributed to this special issue, let me say “Happy birthday, David” and we look forward to many more years of productive and stimulating activity.

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