

## FOREWORD

In the past decade rapid development has occurred in the fields of astrophysics, space science, and plasma physics. The new generation of space observations has led to an increasing requirement for a thorough understanding of processes that occur in magnetized plasmas. The realization that essentially the same plasma processes must be understood for many problems related to astrophysical, space, and man-made plasmas has led to a greater need for interdisciplinary meetings involving experts from these diverse fields. This Symposium, "Unstable Current Systems and Plasma Instabilities in Astrophysics", represents the first meeting within the International Astronomical Union to bring together scientists from these disciplines. It was jointly sponsored by IAU Commissions 40, Radio Astronomy, 12, Solar Radiation and 10, Solar Activity. It was co-sponsored by the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) and by the Committee on Space Research (COSPAR). The Symposium, No. 107, was held at the University of Maryland in College Park, Maryland, August 8-11, 1983.

The Scientific Organizing Committee of the Symposium consisted of M. R. Kundu (Chairman), A. Bridle, A. A. Galeev, J. Heyvaerts, D. B. Melrose, K. Papadopoulos, E. R. Priest, B. V. Somov, D. S. Spicer, S. K. Trehan, Y. Uchida, and V. Vasyliunas. The topics and speakers were chosen in order to emphasize the common physics underlying a diversity of astrophysical topics, and to present the most recent work on these topics and the relevant physics. Physical processes such as magnetic reconnection, the development of plasma microturbulence, plasma wave acceleration and heating of particles, and the onset of MHD instability were common themes throughout most of the symposium papers and discussion. Papers on topics as diverse as jets from the nuclei of active galaxies, solar flares, and planetary magnetospheres were presented and discussed by the symposium participants. These papers and most of the subsequent discussion are reproduced in this volume.

The meeting was hosted by the University of Maryland Astronomy Program. The Local Organizing Committee consisted of D. G. Wentzel (Chairman), G. D. Holman, J. A. Ionson, M. R. Kundu, J. D. Trasco, and L. Vlahos. The committee was assisted by Betty Stevenson. The International Astronomical Union, the National Aeronautics and Space Administration and the National Science Foundation provided grants for the support of the meeting.

We have been helped considerably by several people during the editing of these proceedings for publication. The discussion remarks were recorded by S. F. Fung and T. N. LaRosa. Betty Stevenson typed the discussions as well as several of the contributed papers. We are grateful to each of these people for their help.

This symposium was dedicated to the memory of the late Professor Sergei Ivanovitch Syrovatskii who passed away on September 26, 1979. He was 54 years old at the time of his death. His great contributions to the physics of solar and other astrophysical plasmas will be remembered by the Scientific community for a long time. A short bibliographical sketch written by one of Syrovatskii's colleagues, Dr. Volodya Dogiel of the P.N. Lebedev Physical Institute, appears elsewhere in this volume.

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