

Special Issue:

Solar System Magnetosheaths

A special issue in honor of John Spreiter.

Guest Editors: C.T. Russell and Z. Kaymaz

PLANETARY and SPACE SCIENCE



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Foreword

J.R. Spreiter left a tremendous scientific legacy. He immediately tackled and solved the hardest problem in space physics, the nonlinear supersonic interaction of the solar wind with the very compressible Earth's magnetosphere. His solution of the properties of the plasma, flow and magnetic field in the region called the magnetosheath is still the yardstick by which we judge both observations and new models, 35 years after his pioneering work. John Spreiter also was a role model of how to conduct oneself as a scientist, how to manage a scientific research group and how to be a most helpful colleague. The expression "a gentleman and a scholar" is a long-standing tribute to the most outstanding members of our field and one most appropriate for John Spreiter. He was in every way a most gentle man and a most accomplished scholar. The field of space physics has been much enriched to have him as one of its major practitioners. The symposium upon which this special issue of *Planetary and Space Science* is based was intended from the

beginning to commemorate John Spreiter's many contributions to the field. The symposium was held in Side, Antalya, Turkey from September 4 to 8, 2000 and was titled Intercomparative Magnetosheath Studies. It was hoped that John Spreiter would attend the meeting in person but he passed away as the symposium was being planned. We are most appreciative of his daughter Christine Spreiter's willingness to attend the conference, to act as a liaison with the Spreiter family, to provide photographs of John Spreiter for publication, and to take many excellent photographs of the participants.

The special issue begins with four papers by those who knew John most well. Two of them, Joan Feynman (Illisberg when in his employ) and Steve Stahara, worked directly with John on a "daily" basis for several years, Joan in the early days and Steve in the later years. The next several papers cover recent models of the Earth's magnetosheath and then our understanding of planetary magnetosheaths.



Fig. 1. Group photograph of the participants at the Intercomparative Magnetosheath Studies Symposium held in Side, Antalya, Turkey, September 4–8, 2000.



Fig. 2. Scenes from the life of John Spreiter. Top left, with his mother Agda in Minnesota in 1923; left top center, with his research group at Ames in 1969, pictured are (in front) Joan Hirschberg (nee Feynman), Alberta Allsne, Darlene Moen, Mae Liu and Audrey Summers, and (in rear) Larry Caroff, David Webster, Shigeki Morioka, John Spreiter, Peter Fricker, Ray Reynolds, Aaron Barnes and Pat Cassen; left bottom center, at US–Soviet symposium in mid-1970s with Herb Bridge, Paul Cloutier in Moscow; bottom left, at Ames in 1950s; bottom center, with wife, Brenda, upon his retirement from Ames in 1969; top right, in his MG at Ames in mid-1950s; right middle, receiving congratulations from AGU president Marcia Neugebauer upon his becoming a Fellow in 1994; bottom left, portrait in mid-1990s. (Photos courtesy of T. Spreiter)

magnetosheaths of interplanetary coronal mass ejections and the heliosheath in front of the heliosphere. The following papers treat the boundaries of the magnetosheath, the bow shock and magnetopause. Then come a series of papers that discuss interactions with the magnetosphere near the cusp, and near the low-latitude magnetopause as well as the waves

and fluctuations in the magnetosheath. The volume ends with the treatment of very energetic particles.

In closing I would like to thank the referees who worked so hard in reviewing the papers in this special issue, assuring their quality and enabling a timely production of the volume. The referees who agreed to be identified are as follows:

G. Anagnostopoulos, T. Armstrong, M. Bice-Cattaneo, E. Bunce, H. Cane, J.K. Chao, T. Cravens, N. Crooker, H. de Sterck, C. Farrugia, J. Fedder, J. Feynman, M. Gedalin, M. Lee, J. Linsky, Z. Němeček, T. Onsager, F. Pantellini, K. Paularena, S. Petrinec, T. Phan, J. Raeder, I. Richardson, J. Richardson, J. Šafránková, A. Samsonov, S. Savin, S. Schwartz, M. Schulz, D. Sibeck, G. Siscoe, J. Slavin, P. Song and A. Szabo.

Last but not least we would like to thank Anne McGlynn at UCLA, who handled interactions with the referees, who performed the copy editing and submitted the manuscript to

the publisher. We would also like to thank Istanbul Technical University who assisted with the organization of the conference on which this special issue is based.

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