



COVER Earth's magnetosphere, created by the interaction of the supersonic solar-wind plasma (blue) with the geomagnetic field. The plasma sheet (red) is a reservoir of hot (~1 kiloelectron volt) plasma originating in the solar wind and in the ionosphere. The solar wind-magnetosphere interaction drives a circulation of plasma that populates the Van Allen radiation belts (red dots) and powers auroral optical and radio emissions. See page 410. [Source, T. W. Hill; illustration by Susan Nowoslawski]

Reports

- 416 Laser Method for Synthesis and Processing of Continuous Diamond Films on Nondiamond Substrates: J. NARAYAN, V. P. GODBOLE, C. W. WHITE
- 419 Folding and Unbinding Transitions in Tethered Membranes: F. F. ABRAHAM AND M. KARDAR
- 422 The Shapes and Sizes of Closed, Pressurized Random Walks: J. RUDNICK AND G. GASPARI
- 424 A Virus-Encoded "Superantigen" in a Retrovirus-Induced Immunodeficiency Syndrome of Mice: A. W. HÜGIN, M. S. VACCHIO, H. C. MORSE III
- 427 Engraftment and Development of Human T and B Cells in Mice After Bone Marrow Transplantation: I. LUBIN, Y. FAKTOROWICH, T. LAPIDOT, Y. GAN, Z. ESHHAR, E. GAZIT, M. LEVITE, Y. REISNER
- 431 Adenovirus-Mediated Transfer of a Recombinant α 1-Antitrypsin Gene to the Lung Epithelium in Vivo: M. A. ROSENFELD, W. SIEGFRIED, K. YOSHIMURA, K. YONEYAMA, M. FUKAYAMA, L. E. STIER, P. K. PÄÄKKÖ, P. GILARDI *et al.*
- 434 Group I Intron Self-Splicing with Adenosine: Evidence for a Single Nucleoside-Binding Site: M. D. BEEN AND A. T. PERROTTA
- 437 Dynamic Tracking of Cardiac Vulnerability by Complex Demodulation of the T Wave: B. D. NEARING, A. H. HUANG, R. L. VERRIER
- 440 Recombinant Virus Vaccine-Induced SIV-Specific CD8⁺ Cytotoxic T Lymphocytes: L. SHEN, Z. W. CHEN, M. D. MILLER, V. STALLARD, G. P. MAZZARA, D. L. PANICALI, N. L. LETVIN
- 443 Calcium as a Coagonist of Inositol 1,4,5-Trisphosphate-Induced Calcium Release: E. A. FINCH, T. J. TURNER, S. M. GOLDIN
- 446 Primary Structure and Functional Activity of a Phosphatidylinositol-Glycan-Specific Phospholipase D: B. J. SCALLON, W.-J. C. FUNG, T. C. TSANG, S. LI, H. KADO-FONG, K.-S. HUANG, J. P. KOCHAN

Technical Comment

- 449 Atrionatriuretic Peptide and Calcium-Conducting Sodium Channels: M. F. SHEETS AND D. A. HANCK; L. A. SORBERA AND M. MORAD

Book Reviews

- 453 History of AIDS, reviewed by E. FEE ■ Rheostasis, A. F. BENNETT ■ Some Other Books of Interest

Products & Materials

- 456 Tiny pH and Temperature Probe ■ Sequencing Electrophoresis System ■ Program for DNA and Protein Sequence Analysis ■ Antibody-Enzyme Conjugation Kits ■ Monoclonal Antibody Isotyping Kits ■ Electroporation Device ■ pH Maintenance Kit ■ Literature

Board of Directors

Donald N. Langenberg
*Retiring President,
Chairman*

Leon M. Lederman
President

F. Sherwood Rowland
President-elect

Mary Ellen Avery
Francisco J. Ayala
Eugene H. Cota-Robles
Robert A. Frosch
Joseph G. Gavin, Jr.
Florence P. Haseltine
Jean'ne M. Shreeve
Warren M. Washington

William T. Golden
Treasurer

Richard S. Nicholson
Executive Officer

Editorial Board

Charles J. Arntzen
Elizabeth E. Bailey
David Baltimore
William F. Brinkman
E. Margaret Burbidge
Pierre-Gilles de Gennes
Joseph L. Goldstein
Mary L. Good
Harry B. Gray
John J. Hopfield
F. Clark Howell
Paul A. Marks
Yasutomi Nishizuka
Helen M. Ranney
Robert M. Solow
Edward C. Stone
James D. Watson

Board of Reviewing Editors

John Abelson
Frederick W. Alt
Don L. Anderson
Stephen J. Benkovic
Floyd E. Bloom
Henry R. Bourne
James J. Bull
Kathryn Calame
Charles R. Cantor
Ralph J. Cicerone
John M. Coffin
Robert Dorfman
Bruce F. Eldridge
Paul T. Englund
Fredric S. Fay

Douglas T. Fearon
Harry A. Fozzard
Theodore H. Geballe
Roger I. M. Glass
Stephen P. Goff
Corey S. Goodman
Stephen J. Gould
Eric F. Johnson
Stephen M. Kosslyn
Konrad B. Krauskopf
Charles S. Levings III
Richard Losick
Anthony R. Means
Mortimer Mishkin
Roger A. Nicoll
William H. Orme-Johnson III
Yeshayau Pocker

Dennis A. Powers
Erkki Ruoslahti
Thomas W. Schoener
Ronald H. Schwartz
Terrence J. Sejnowski
Thomas A. Steitz
Robert T. N. Tjian
Emil R. Unanue
Geerat J. Vermeij
Bert Vogelstein
Harold Weintraub
Zena Werb
George M. Whitesides
Owen N. Witte
William B. Wood
Keith Yamamoto