
EDITORIAL  The Computer Issue .......................................................... 401

ARTICLES  An Approach to Complexity: Numerical Computations: L. L. Smarr .................................................. 403


New Approaches in Economic Analysis: W. Leontief, F. Duchin, D. B. Szydl .... .... 419

Computers in Production Agriculture: D. A. Holt .............................................. 422

Some Computer-Based Developments in Sociology: D. R. Heise and R. G. Simons .................................................. 428

Computer Applications in the Humanities: J. Raben .................................................. 434

Personal Computers on Campus: M. M. Waldrop .................................................. 438

Electronic Databases: M. E. Williams .............................................. 445


Multis: A New Class of Multiprocessor Computers: C. G. Bell .................................................. 462

Workstations in Science: W. Joy and J. Gage .................................................. 467

NEWS AND COMMENT  Security Problems Plague Scientific Meeting .................................................. 471

Generics, Roche Joust for Valium Market .................................................. 472

NIMH Emphasizes the Basics .................................................. 474

Europe Tries Cooperation on Military R&D .................................................. 475

Deficit Woes Spur Drive to Kill Synfuels .................................................. 477

Briefing: Mixed Signals on Stanford Biotech Patent; U.S. Tops Soviets in Key Weapons Technology; Comings and Goings .................................................. 478

BOARD OF DIRECTORS

ANNA J. HARRISON  Retiring President, Chairman

DAVID A. HAMBURG  President

GERARD PIEL  President-Elect

ROBERT W. BERLINER  Lawrence Bograd

WALTER E. MASSEY  Dorothy Nelkin

CHAIRMEN AND SECRETARIES OF AAAS SECTIONS

MATHEMATICS (A)  Gail S. Young

Physics (B)  Chen Ning Yang

Lynn Arthur Steen

Rolf M. Sinclair

SOCIAL, ECONOMIC, AND POLITICAL SCIENCES (K)

ROBIN M. WILLIAMS, JR.

David L. Flits

HISTORY AND PHILOSOPHY OF SCIENCE (L)

Wesley C. Salmon

David L. Hull

INFORMATION, COMPUTING, AND COMMUNICATION (T)

Joseph Becker

Madeleine M. Henderson

PHARMACEUTICAL SCIENCES (S)

STUART FELDMAN

DAVID A. KNAPP

DIVISIONS

ARCTIC DIVISION  Robert White  President

DAVID A. HAMBURG  Executive Secretary

Caribbean Division  Juan A. Bonet, Jr.  President

Gunter E. Weiler

Lucy Gaspar  Secretary-Treasurer

PACIFIC DIVISION  Walter Gardner  President

ALAN E. LEVITON  Executive Director

Multis: A New Class of Multiprocessor Computers: C. G. Bell
RESEARCH NEWS

Must “Hard Problems” Be Hard? ........................................... 479
Synchrotron Radiation Takes Over at Orsay .......................... 481

BOOK REVIEWS

Sex Segregation in the Workplace, reviewed by C. B. Marret; Statistical Physics and Chaos in Fusion Plasmas, A. Kaufman; Quaternary Stratigraphy of Canada, D. M. Mickelson; Some Other Books of Interest; Books Received . . . 484

REPORTS

Storage and Remobilization of Suspended Sediment in the Lower Amazon River of Brazil: R. H. Meade et al. ................................................ 488
Monoclonal Antibody-Directed Radioimmunoassay Detects Cytochrome P-450 in Human Placenta and Lymphocytes: B.-J. Song et al. .......................... 490
Two Types of Somatostatin Receptors Differentiated by Cyclic Somatostatin Analogs: V. T. Tran, M. F. Beal, J. B. Martin ................................. 492
Protection of Mice Against Fatal Herpes Simplex Type 2 Infection by Liposomes Containing Muramyl Tripeptide: W. C. Koff et al. .................. 495
Interleukin-1 Stimulation of Astroglial Proliferation After Brain Injury: D. Gillian and L. B. Lachman ................................. 497
A Specific 37,000-Dalton Protein That Accumulates in Regenerating but Not in Nonregenerating Mammalian Nerves: H. W. Müller et al. ................. 499
Genetic Origin of Mutations Predisposing to Retinoblastoma: W. K. Cavenee et al. .................................................. 501

PRODUCTS AND MATERIALS

Biomedical Image Analysis; Database Hardware Sorter; Spectrophotometry Software; Programmable Machine Vision Systems; Pipetting Software; Scientific Computer; Software for Data Acquisition; Viscometer Software; Array Processor Software Library; Microcomputer Software for Chemists; Graphics System; Chromatography Data System; Temperature Plotter for Classroom ............................................ 504

COVER

The color image represents a cross section of a spiraling gas flow near a black hole. The colors represent the gas density in every zone on the computational grid; density decreases in spectral order from red to blue. The underlying grid can be seen as the small squares at the outer edges of the image. The red stripes that “pinch in” at the equator (horizontal plane) are shock waves. The heart-shaped region is a fat disk orbiting the black hole. See page 403. [Computation by John Hawley and Larry L. Smarr, Department of Astronomy, University of Illinois. Calculations were performed on the Cray-I supercomputer, Max-Planck Institut für Physik und Astrophysik, Garching, Federal Republic of Germany]
Science 228 (4698), 390-507.