

**Fast, timely, and reliable...  
the pre-eminent journal in its field**

**All about modern astronomy and  
astrophysics, clearly presented and  
thoroughly referenced...**

# ASTRONOMY AND ASTROPHYSICS

A European Journal

# THE ASTRONOMY AND ASTROPHYSICS REVIEW

Editors-in-Chief:

**J. Lequeux**, Observatoire de Meudon, Meudon, France  
**M. Grewing**, Astronomisches Institut Tübingen, Germany

Edited by an international staff of scientists and published on behalf of the astronomical societies of twelve European countries, with the support of the European Southern Observatory (ESO), this essential journal covers all aspects of astronomy and astrophysics – theoretical, observational, and instrumental – independently of the techniques employed to obtain the results – numerical analysis, optical, radio, particles, space vehicles, etc. Letters to the editor, research notes and occasional review papers are included.

*Astronomy and Astrophysics* is divided into the following sections:

1. Letters; 2. Cosmology; 3. Extragalactic astronomy; 4. Galactic structure and dynamics; 5. Stellar clusters and associations; 6. Formation, structure and evolution of stars; 7. Stellar atmospheres; 8. Diffuse matter in space (including H-regions and planetary nebulae); 9. The Sun; 10. The solar system; 11. Celestial mechanisms and astrometry; 12. Physical and chemical processes; 13. Instruments, data processing, and computational methods.

It is abstracted/indexed in *Astronomy and Astrophysics Abstracts*, CAS, Current Contents, INIS, Inspec, Physics Briefs, PHYS on STN, Technical Information Center/Energinfo, and Zentralblatt für Mathematik.

Managing Editor:

**L. Woltjer**, Saint Michel l'Observatoire, France

Editorial Board:

**M. C. E. Huber**, Noordwijk, The Netherlands  
**P. Léna**, Meudon, France  
**P. G. Mezger**, Bonn, Germany  
**F. Pacini**, Firenze, Italy  
**S. R. Pottasch**, Groningen, The Netherlands  
**M. Rees**, Cambridge, UK

Providing the researcher with a primary source for reviews that present a complete and well-balanced survey of the world literature in astronomy and astrophysics, *The Astronomy and Astrophysics Review* includes developments in atomic, molecular or particle physics directly relevant to astronomy as well as cosmic ray physics, studies in the solar systems and computational procedures with specific astronomical applications.

The primary objective of this journal is to review all important fields from time to time, with the frequency of review being determined by the amount of activity in the different areas. Thus, the collected volumes of *The Astronomy and Astrophysics Review* should provide a complete survey of the major recent developments in astronomy as a whole.

For both journals personal rates are available!

Please ask for details:

Springer-Verlag, Customer Services, P. O. Box 10 52 80, W-6900 Heidelberg  
Tel. 49/(0) 62 21-48 73 84; Fax 49 (0) 62 21- 48 73 66

## ASTRONOMY AND ASTROPHYSICS

An International Journal

ISSN 0004-6361 Title No. 230

1992, Volumes 253-266 (2 issues per volume)

Subscription Rate: DM 2,640,- plus carriage charges DM 109,35 (domestic)

DM 154,- (foreign countries)

## THE ASTRONOMY AND ASTROPHYSICS REVIEW

ISSN 0935-4956 Title No. 159

1992, Vol. 4 (4 issues per volume)

Subscription Rate: DM 280,- plus carriage charges DM 7,06 (domestic)

DM 13,40 (foreign countries)



tm.10.541/SF

## INSTRUCTIONS TO AUTHORS

Authors wishing to have papers published in the *JOURNAL* should communicate them to any one of the editorial board, choosing one in their own country where possible.

Authors are urged to ensure that their papers are written clearly and attractively, in order that their work will be readily accessible to readers.

Manuscripts should be typed in double spacing on one side of the paper only, with references listed at the end in alphabetical order of authors. Drawings should be done in Indian ink on plain white or transparent paper, and should not be larger than 15 in. by 24 in. Lettering should be shown clearly in pencil for reproduction by the printer, and as far as possible information relating to a figure should be placed in the caption rather than on the figure. A typed list of captions should be provided at the end of the manuscript. Proofs of papers from overseas will usually be despatched to authors by airmail. There is no charge for publication. Authors are entitled to receive 50 offprints of a paper in the *JOURNAL* free of charge, and additional offprints can be purchased if ordered in advance.

# JOURNAL OF PLASMA PHYSICS

Volume 48 Part 2 October 1992

## CONTENTS

On driven, dissipative, energy-conserving magnetohydrodynamic equilibria MICHAEL L. GOODMAN	177
Density-modulation effects on the propagation of an electromagnetic wave in a plasma MAURIZIO LONTANO AND NICOLAI LUNIN	209
Quasi-one-dimensional model equations for plasma flows in high-pressure discharges in ablative capillaries D. ZOLER AND S. CUPERMAN	215
Sheath potential distribution in a plasma including negative ions H. YAMADA AND Z. YOSHIDA	229
Nonlinear MHD waves in a dissipative plasma with Hall dispersion and the modified Burgers–Schrödinger equation SERGEI V. KORSUNSKY	237
Effect of large Larmor radius on the stability of an infinitely conducting inhomogeneous plasma NAGENDRA KUMAR, KRISHNA M. SRIVASTAVA AND VINOD KUMAR	245
Stimulated emission from a laser-wiggled electron beam travelling in an electrostatic wave S. H. KIM	261
Thermodynamics of Vlasov equilibria E. MINARDI	281
Lagrangian description and entropy of magnetic Vlasov systems E. MINARDI	309
Waves with nonlinear polarization due to a self-generated magnetic field in a plasma N. B. ALEKSIC, YU. M. ALIEV, V. YU. BYCHENKOV AND S. VUKOVIĆ	325
Stability of electron inertia Alfvén solitons P. FRYCZ, R. RANKIN AND J. C. SAMSON	335

© Cambridge University Press 1992

**CAMBRIDGE UNIVERSITY PRESS**

THE PITT BUILDING, TRUMPINGTON STREET, CAMBRIDGE CB2 1 RP

40 WEST 20TH STREET, NEW YORK, NY 10011-4211, USA

10 STAMFORD ROAD, OAKLEIGH, VICTORIA 3166, AUSTRALIA

*Printed in Great Britain by the University Press, Cambridge*