

# INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES

## *Editor-in-Chief:*

GEORGE HERRMANN *The Technological Institute  
Northwestern University, Evanston, Illinois, 60201*

## *Board of Editors:*

B. A. BOLEY *Cornell University*  
V. V. BOLOTIN *USSR Academy of Sciences*  
L. FINZI *Milan Polytechnic Institute*  
Y. C. FUNG *University of California, San Diego*  
H. J. GREENBERG *University of Denver*  
H. LIEBOWITZ *The George Washington University*  
C. MASSONNET *University of Liège*  
E. W. PARKES *Cambridge University*  
K. WASHIZU *University of Tokyo*  
W. ZERNA *Ruhr-Universität Bochum*  
O. C. ZIENKIEWICZ *University College of Swansea*  
H. ZORSKI *Polish Academy of Sciences*

## *Editorial Advisory Board:*

J. H. ARGYRIS	<i>London</i>	F. K. G. ODQUIST	<i>Stockholm</i>
I. BABUSKA	<i>Prague</i>	H. PARKUS	<i>Vienna</i>
C. BENITO	<i>Madrid</i>	W. PRAGER	<i>Providence</i>
J. L. ERICKSEN	<i>Baltimore</i>	IU. N. RABOTNOV	<i>Moscow</i>
J. FERRY BORGES	<i>Lisbon</i>	F. S. SHAW	<i>Sydney</i>
N. J. HOFF	<i>Stanford</i>	J. SINGER	<i>Haifa</i>
C. F. KOLLBRUNNER	<i>Zurich</i>	I. N. SNEDDON	<i>Glasgow</i>
J. MANDEL	<i>Paris</i>	R. STOJANOVITCH	<i>Belgrade</i>
R. D. MINDLIN	<i>New York</i>	D. WILLIAMS	<i>Farnborough</i>
F. NIORDSON	<i>Copenhagen</i>	A. YLINEN	<i>Helsinki</i>

Published monthly. Subscription, post paid (air mail charges extra): \$70.00 *per annum*, for libraries, research establishments and all other multiple-reader institutions. Rates for private individual subscribers available on request.

Back issues are available. Write for Back Issues Price List.

Copyright © 1969 Pergamon Press Ltd.

*Publishing Offices:*

**PERGAMON PRESS LTD.**

Headington Hill Hall, Oxford, OX3 OBW, England (Oxford 64881) · 44-01 21st St., Long Island City, N.Y. 11101, U.S.A.

# planetary and space science

**EDITOR-IN-CHIEF:**  
PROFESSOR D.H. BATES BELFAST

Since it was established in 1959 *Planetary and Space Science* has reflected the activity of an international body of research workers concerned with the various scientific fields relating to the sun and planets, and in particular the earth, its atmosphere and adjacent space.

Specific areas dealt with through original contributions include: planetary and terrestrial atmospheres, atomic processes, radio and visual aurora, comets, cosmic rays, the geomagnetic field, gravitational potential, magneto-ionic theory, the moon, meteors, radiation belts, solar corpuscular and electromagnetic radiation, solar wind, zodiacal light, the interplanetary magnetic field and the ionosphere.

As well as full-length papers, the Journal publishes research notes and critical surveys which are intended to keep the reader fully informed of events and advances in this field.

## Papers appearing Volume 16 (1968)

**J.C.G. Walker and M. H. Rees**: Ionospheric electron densities and temperatures in aurora.

**Joint Satellite Studies Group**: On the latitude variation of scintillations of ionospheric origin in satellite signals.

**W.B. Maier**: Reactions of He with N<sub>2</sub> and O<sub>2</sub> in the upper atmosphere.

**H.G. Müller**: Wind shears in the meteor zone.

**G. Fielder**: Linear arrays of craters on the Ranger photographs.

**D.G. King-Hele and J. Hingston**: Air density at heights near 190km in 1966-1967 from the orbit of Secor 6.

**J.H. Piddington**: The magneto-spheric radiation belt and tail plasma.



**Published monthly. Write for full details and an specimen copy**

PERGAMON PRESS · OXFORD · NEW YORK

*an international journal reporting research on  
crystal growth and materials preparation and  
characterization*

# Materials Research Bulletin



**Joint Editors-in-Chief:**  
**Heinz K. Henisch and Rustum Roy**  
The Pennsylvania State University

Materials Research Bulletin is a focal point for research on materials in relation to the fields of physics, chemistry, engineering and earth sciences.

Papers are published within six weeks after acceptance, and cover the structure and properties of electronically, optically or mechanically interesting solids, which are considered and discussed as a function of preparational parameters. Other subjects include the synthesis of new phases, high pressure and high temperature phase changes, crystal growth mechanism and techniques, defect structure analysis, the preparation and structure of noncrystalline solids, and the development of new characterizing criteria and experimental methods.

**Papers appearing during 1968 include**

**A. Madeysk and W. W. Smeltzer:** Oxygen diffusion in monoclinic zirconia

**S. A. Levy and R. Gashler:** On the origin of lamellae in high resistivity KTN

**B. G. Bagley, H. S. Chen and D. Turnbull:** Characterization of amorphous alloy films

**A. Roger et R. Fruchart:** Etude magnétique et structurale de la solution solide MnP - MnAs

**A. Vasko:** Examination of internal defects in chalcogenide glasses by infrared defectoscopy methods

**Published monthly**

Write for full details and an inspection copy

**PERGAMON PRESS LTD**  
OXFORD · NEW YORK



# BUILDING SCIENCE

**Editor-in-Chief A. W. Hendry** London

Building science is an exceptionally rich and complex field which seeks to correlate knowledge gained by physical, biological, human and engineering scientists which has a bearing on the problems of building, and to derive a rational practical solution to these problems.

**BUILDING SCIENCE** is a unique journal specialising in research of a high scientific standard, on the application of science and scientifically based technology to the design, construction and maintenance of buildings.

By providing a medium of publication for research in this field, the journal is of direct interest to an international body of research workers and professional people concerned with the building industry.

## **Papers published recently:**

**A. Mitzel and M. Klapoc:** Tests on the non-linear creep of concrete

**J. Kuczynski:** Warmeschaden Gebauden

**J. W. Simpson:** A non-destructive method of measuring concrete density using backscattered gamma radiation

**P. M. Jones and C. B. Wilson:** Wind flow in an urban area: A comparison of full scale and model flows

**M. E. Jones:** A review of the literature on the structure of wind turbulence, with special regard to its effect on buildings

**R. A. Swane and M. K. Vagmolkar:** The effect of heat on the static withdrawal resistance of plain shank nails in some Australian timbers

## **Published quarterly**

Write for full details and an inspection copy to  
PERGAMON PRESS LTD · Oxford · New York



**PERGAMON PRESS LTD · OXFORD · NEW YORK**

# INTERNATIONAL JOURNAL OF **Non-Linear Mechanics**

**Editor-in-Chief:** W. A. Nash, Amherst, Mass.

This journal provides a specific medium for communication in the various fields of theoretical and applied mechanics of solids and fluids. It brings together original results in non-linear problems, including elasticity, plasticity, vibrations, rheology, hydrodynamics, gas dynamics, magneto-hydrodynamics, astromechanics, control and stability, as well as mathematical treatments of non-linear equations.

## **Papers published during 1968 include**

**M. Sidar:** An iterative algorithm for optimum control problems

**W. Szemplinska-Stupnicka:** Higher harmonic oscillations in heteronomous non-linear systems with one degree of freedom

**A. M. Benis:** Theory of non-Newtonian flow through porous media in narrow three-dimensional channels

**Ta-Lun Yang and R. M. Rosenberg:** On forced vibrations of a particle in the plane

**J. A. Morrison:** Resonant forced non-linear oscillatory and rotary motions

**W. Szczepinski and J. Miastkowski:** Plastic straining of notched bars with intermediate thickness and small shoulder ratio

**R. Bouc:** Remarque sur un resultat d'Urabe



## **Published Quarterly:**

Write for full details and an inspection copy

**PERGAMON PRESS LTD.**

OXFORD · NEW YORK