

QUARTERLY REVIEWS OF

# *Biophysics*

VOLUME 22 1989

EDITORS

R. Henderson (*United Kingdom*)

T. A. Steitz (*USA*)

J. C. Wang (*USA*)

K. Wüthrich (*Switzerland*)

COUNCIL OF IUPAB

S. Asakura (*Japan*)

H. J. C. Berendsen (*The Netherlands*)

M. Brunori (*Italy*) *Vice-President*

C. E. Challice (*Canada*)

H. Eisenberg (*Israel*) *Vice-President*

G. Eisenman (*USA*)

E. E. Fesenko (*USSR*)

W. Fuller (*UK*)

P. Läger (*FRG*)

K. C. Lin (*China*)

L. D. PEACHEY (*USA*) *President*

B. Pullman (*France*) *Hon. Vice-President*

R. Rigler (*Sweden*)

J. A. Subirana (*Spain*)

J. Tigyí (*Hungary*) *Secretary-General*

K. L. Wierzbowski (*Poland*)

K. Wüthrich (*Switzerland*)

PUBLISHED FOR THE INTERNATIONAL UNION FOR  
PURE AND APPLIED BIOPHYSICS

CAMBRIDGE UNIVERSITY PRESS 1989

Published by the Press Syndicate of the University of Cambridge  
The Pitt Building, Trumpington Street, Cambridge CB2 1RP  
40 West 20th Street, New York, NY 10011, USA  
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© Cambridge University Press 1989

Printed in Great Britain by the University Press, Cambridge

## CONTENTS

### NO. 1 FEBRUARY 1989

- A. GRÄSLUND AND B. JERNSTRÖM. DNA–carcinogen interaction: covalent DNA-adducts of benzo(a)pyrene 7,8-dihydrodiol 9,10-epoxides studied by biochemical and biophysical techniques 1
- V. I. GOLDANSKII AND Y. F. KRUPYANSKII. Protein and protein-bound water dynamics studied by Rayleigh scattering of Mössbauer radiation (RSMR) 39

### NO. 2 MAY 1989

- X. GAO AND D. J. PATEL. Antitumour drug-DNA interactions: NMR studies of echinomycin and chromomycin complexes 93
- M. F. PERUTZ. Mechanisms of cooperativity and allosteric regulation in proteins 139

### NO. 3 AUGUST 1989

- ALFRED R. HOLZWARTH. Applications of ultrafast laser spectroscopy for the study of biological systems 239
- OLGA KENNARD AND WILLIAM N. HUNTER. Oligonucleotide structure: a decade of results from single crystal X-ray diffraction studies 327

### NO. 4 NOVEMBER 1989

- REINHARD SCHWEITZER-STENNER. Allosteric linkage-induced distortions of the prosthetic group in haem proteins as derived by the theoretical interpretation of the depolarization ratio in resonance Raman scattering 381