IUCT MONOGRAPHS ON CRYSTALLOGRAPHY : 14

Polymorphism in Molecular Crystals

JOEL BERNSTEIN

OXFORD SCIENCE PUBLICATIONS



INTERNATIONAL UNION OF CRYSTALLOGRAPHY MONOGRAPHS ON CRYSTALLOGRAPHY

IUCr BOOK SERIES COMMITTEE

A. A. Chernov, Russia
P. Coppens (Chairman), USA
G. R. Desiraju, India
J. Drenth, The Netherlands
A. M. Glazer, UK
J. P. Glusker, USA
J. R. Helliwell, UK



IUCr Monographs on Crystallography

- 1 Accurate molecular structures: their determination and importance A. Domenicano and I. Hargittai, editors
- 2 P. P. Ewald and his dynamical theory of X-ray diffraction D. W. J. Cruickshank, H. J. Juretschke, and N. Kato, editors
- 3 Electron diffraction techniques, Volume 1
 - J. M. Cowley, editor
- 4 Electron diffraction techniques, Volume 2 J. M. Cowley, editor
- 5 The Rietveld method
 - R. A. Young, editor
- 6 Introduction to crystallographic statistics
 - U. Shmueli and G. H. Weiss
- 7 Crystallographic instrumentation
 - L. A. Aslanov, G. V. Fetisov, and J. A. K. Howard
- 8 Direct phasing in crystallography: fundamentals and applications C. Giacovazzo
- 9 The weak hydrogen bond in structural chemistry and biology G. R. Desiraju and T. Steiner
- 10 Defect and microstructure analysis by diffraction R. L. Snyder, J. Fiala, and H. J. Bunge
- 11 Dynamical theory of X-ray diffraction
 - A. Authier
- 12 The chemical bond in inorganic chemistry
 - I. D. Brown
- 13 Structure determination from power diffraction data W. I. F. David, K. Shankland, L. B. McCusker, and Ch. Baerlocher, editors
- 14 Polymorphism in molecular crystals
 J. Bernstein

IUCr Texts on Crystallography

- 1 The solid state: from superconductors to superalloys A. Guinier and R. Julien, translated by W. J. Duffin
 - X-Ray charges densities and chemical bonding
 - P. Coppens
- 5 The basics of crystallography and diffraction, second edition
 - C. Hammond
- 6 Crystal structure analysis: principles and practice W. Clegg, editor
- 7 Fundamentals of crystallography, second edition C. Giacovazzo, editor



Polymorphism in Molecular Crystals

JOEL BERNSTEIN

Department of Chemistry Ben-Gurion University of the Negev

CLARENDON PRESS • OXFORD 2002



OXFORD

Great Clarendon Street, Oxford OX2 6DP

Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide in

Oxford New York

Auckland Bangkok Buenos Aires Cape Town Chennai Dar es Salaam Delhi Hong Kong Istanbul Karachi Kolkata Kuala Lumpur Madrid Melbourne Mexico City Mumbai Nairobi São Paulo Shanghai Taipei Tokyo Toronto

with an associated company in Berlin

Oxford is a registered trade mark of Oxford University Press in the UK and in certain other countries

Published in the United States by Oxford University Press Inc., New York

© Oxford University Press, 2002

The moral rights of the author have been asserted Database right Oxford University Press (maker)

First published 2002

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, without the prior permission in writing of Oxford University Press, or as expressly permitted by law, or under terms agreed with the appropriate reprographics rights organization. Enquiries concerning reproduction outside the scope of the above should be sent to the Rights Department, Oxford University Press, at the address above

You must not circulate this book in any other binding or cover and you must impose this same condition on any acquirer

A Catalogue record for this title is available from the British Library

Library of Congress Cataloging in Publication Data

Bernstein, Joel.

Polymorphism in molecular crystals / Joel Bernstein. (IUCr monographs on crystallography; 14) Includes index.

1. Polymorphism (Crystallography) 2. Molecular crystals. I. Title. II. International Union of Crystallography monographs on crystallography; 14.

QD951 .B57 2002

548'.3—dc21

2001047556

ISBN 0 19 850605 8

10 9 8 7 6 5 4 3 2 1

Typeset by
Newgen Imaging Systems (P) Ltd., Chennai, India
Printed in Great Britain
on acid-free paper by
T. J. International Ltd, Padstow



DOCKET

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

