

Commutative Algebra and Combinatorics

ADVANCED STUDIES IN PURE MATHEMATICS 11

Chief Editor: H. Morikawa (Nagoya University)

Commutative Algebra and Combinatorics

Edited by

M. Nagata (Kyoto University) and
H. Matsumura (Nagoya University)



KINOKUNIYA COMPANY LTD.
TOKYO JAPAN



NORTH-HOLLAND
AMSTERDAM·NEW YORK·OXFORD

© 1987 by Editorial Committee of Advanced Studies in Pure Mathematics

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, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owner.

ISBN: 0 444 70314 4

Publishers
KINOKUNIYA COMPANY LTD.
TOKYO JAPAN

* * *

ELSEVIER SCIENCE PUBLISHERS B.V.

P.O. Box 1991
1000 BZ Amsterdam
The Netherlands

Sole distributors for the U.S.A. and Canada
ELSEVIER SCIENCE PUBLISHING COMPANY, INC.
52 VANDERBILT AVENUE
NEW YORK, N.Y. 10017

Distributed in Japan by KINOKUNIYA COMPANY LTD.
Distributed outside Japan by ELSEVIER SCIENCE PUBLISHERS B.V. (NORTH-HOLLAND)

Advanced Studies in Pure Mathematics 11

Chief Editor
H. Morikawa, Nagoya University

Editorial Board to the Series

K. AOMOTO (Nagoya Univ.)	R. Hotta (Tohoku Univ.)	Y. IHARA (Univ. of Tokyo)	S. IITAKA (Gakushuin Univ.)
M. KASHIWARA (Kyoto Univ.)	T. KOTAKE (Tohoku Univ.)	Y. MATSUMOTO (Univ. of Tokyo)	H. MATSUMURA (Nagoya Univ.)
H. MORIKAWA (Nagoya Univ.)	S. MURAKAMI (Osaka Univ.)	M. NAGATA (Kyoto Univ.)	T. OCHIAI (Univ. of Tokyo)
T. ODA (Tohoku Univ.)	K. OKAMOTO (Hiroshima Univ.)	T. OSHIMA (Univ. of Tokyo)	T. SUNADA (Nagoya Univ.)
H. TODA (Kyoto Univ.)			

PRINTED IN JAPAN
by Tokyo Press Co., Ltd.