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Plasma Processes for Semiconductor Fabrication

Plasma processing is a central technique in the fabrication of semiconductor devices. This self-contained book provides an up-to-date description of plasma etching and deposition in semiconductor fabrication. It presents the basic physics and chemistry of these processes and shows how they can be accurately modeled.

The author begins with an overview of plasma reactors and discusses the various models for understanding plasma processes. He then covers plasma chemistry, dealing with the effects of different chemicals on the features being etched. Having presented the relevant background material, he then describes in detail the modeling of complex plasma systems, with reference to experimental results. The book closes with a useful glossary of technical terms. No prior knowledge of plasma physics is assumed in the book. It contains many homework exercises and will serve as an ideal introduction to plasma processing and technology for graduate students of electrical engineering and materials science. It will also be a useful reference for practicing engineers in the semiconductor industry.

W. N. G. Hitchon received his B.A., M.Sc. and D.Phil. degrees from the University of Oxford and is Professor and Graduate Chair in the Department of Electrical and Computer Engineering and a member of the Center for Plasma-Aided Manufacturing at the University of Wisconsin, Madison. He is the author of over seventy journal articles and two previous books, *Flux Coordinates and Magnetic Field Structure* and *Semiconductor Devices: A Simulation Approach*.

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PLASMA PROCESSES FOR SEMICONDUCTOR FABRICATION

W. N. G. HITCHON

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CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press
The Edinburgh Building, Cambridge CB2 2RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9780521591751

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First published 1999
This digitally printed first paperback version 2005

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data

Hitchon, W. Nicholas G.
Plasma processes for semiconductor fabrication / W. N. G. Hitchon.
p. cm.
ISBN 0-521-59175-9
1. Semiconductors – Etching. 2. Plasma etching. I. Title
TK7871.85.H54 1999
621.3815′2 – dc21
98-11717
CIP

ISBN-13 978-0-521-59175-1 hardback
ISBN-10 0-521-59175-9 hardback

ISBN-13 978-0-521-01800-5 paperback
ISBN-10 0-521-01800-5 paperback

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To my wife Jackie and son Adam.

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