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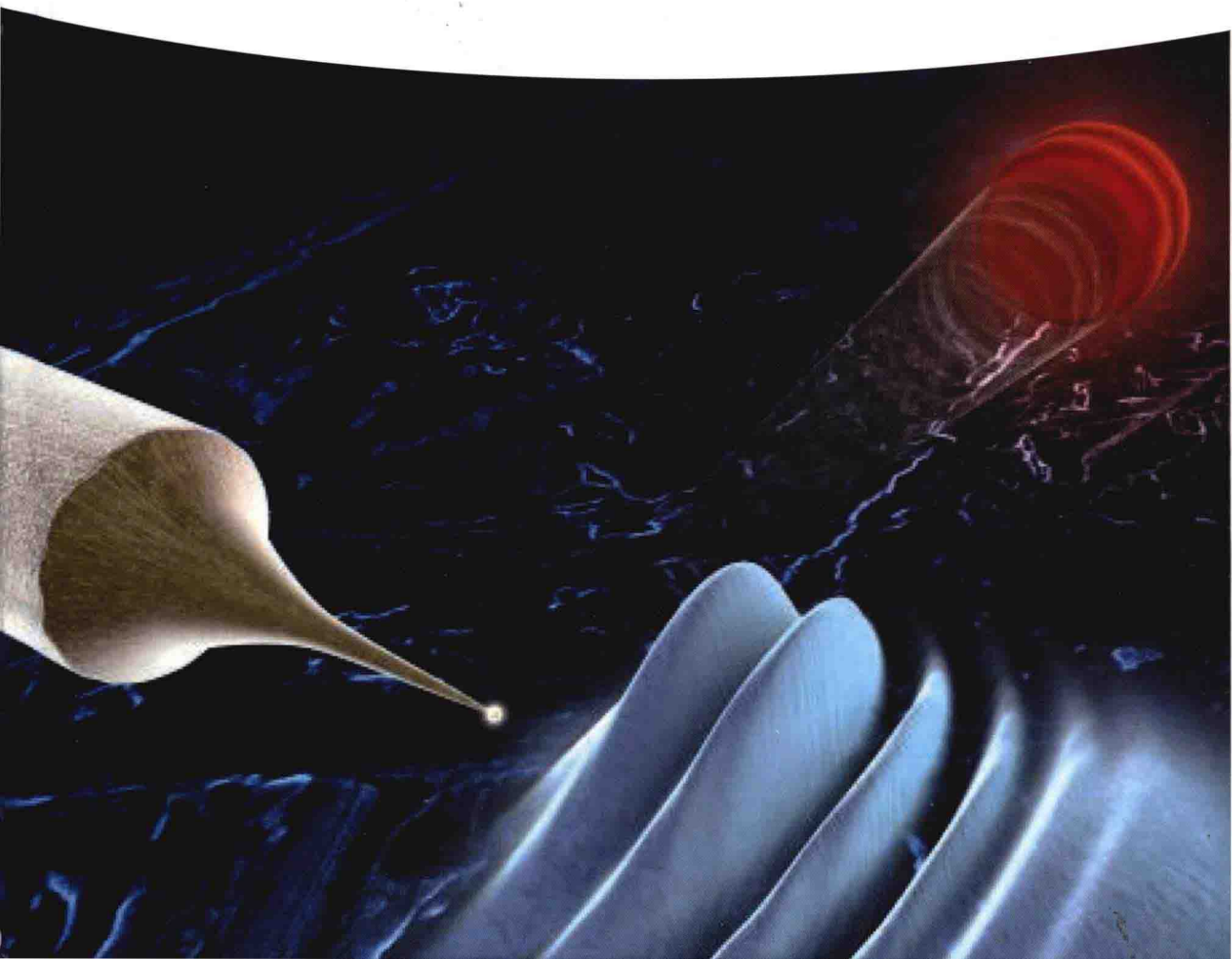
Edited by Peter Hommelhoff and Matthias F. Kling

Attosecond Nanophysics

From Basic Science to Applications



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WILEY-VCH
Verlag GmbH & Co. KGaA

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Cover

Laser light pulses consisting of a few optical cycles are focused onto a nanometric metal tip. Owing to the high intensity electrons are emitted on a very short time scale by highly non-linear photon absorption. Due to plasmonic effects the actual laser intensity is further increased at the tip's apex.

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Library of Congress Card No.: applied for

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library.

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at http://dnb.d-nb.de.

Print ISBN: 978-3-527-41171-9
ePDF ISBN: 978-3-527-66565-5
ePub ISBN: 978-3-527-66564-8
Mobi ISBN: 978-3-527-66563-1
oBook ISBN: 978-3-527-66562-4

Typesetting Laserwords Private Limited, Chennai, India
Printing and Binding Markono Print Media Pte Ltd, Singapore
Cover Design Jeffrey Goh, Singapore Design Team

Printed on acid-free paper

Edited by
Peter Hommelhoff
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Attosecond Nanophysics

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Preface

This book establishes that attosecond nanophysics has become an important subdiscipline of attosecond science, but the fact that it is the first of its kind also indicates the relative youth of this field. Even so, a bright future can be foreshadowed by the link between the time and length scales that play a role in nanomaterials and their applications: the fastest electronic processes in nanomaterials occur on timescales in the attosecond domain.

We are grateful to the authors for their contributions and to the many colleagues that were involved in the research discussed here. We further gratefully acknowledge support by Friedrich-Alexander-Universität Erlangen-Nürnberg, Ludwig-Maximilians-Universität München, Kansas-State University, Max Planck Institute of Quantum Optics, the German Research Foundation via the cluster of excellence "Munich Center for Advanced Photonics (MAP)", the US Department of Energy and last but not least the four companies that facilitated the color version of this book.

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