

# Advances in Solid State Physics

## Volume 43



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# Advances in Solid State Physics

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Advances in Solid State Physics is a book series with a history of over 40 years. It contains the invited lectures presented at the Spring Meetings of the “Arbeitskreis Festkörperphysik” of the “Deutsche Physikalische Gesellschaft”, held in March of each year. The invited talks are intended to reflect the most recent achievements of researchers working in the field both in Germany and worldwide. Thus the volume of the series represent a continuous documentation of most recent developments in what can be considered as one of the most important and active fields of modern physics. Since the majority of invited talks are usually given by young researchers at the start of their career, the articles can also be considered as indicating important future developments.

The speakers of the invited lectures and of the symposia are asked to contribute to the yearly volumes with the written version of their lecture at the forthcoming Spring Meeting of the Deutsche Physikalische Gesellschaft by the Series Editor early before the meeting.

Advances in Solid State Physics is addressed to all scientists at universities and in industry who wish to obtain an overview and to keep informed on the latest developments in solid state physics. The language of publication is English.

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Bernhard Kramer (Ed.)

# Advances in Solid State Physics

43

With 483 Figures



Springer

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# Preface

The 2003 spring meeting of the Arbeitskreis Festkörperphysik of the Deutsche Physikalische Gesellschaft (DPG) was held for the first time in the beautiful city of Dresden, between March 24 and March 28, 2003. This time the number of conference attendees reached a record high. More than 3600, mostly young, physicists participated in the largest of the spring meetings of the DPG. This certainly indicates that solid state physics is a field whose attractiveness continuously increases and which is also of outstanding importance, especially for applications.

The present volume, 43 of ‘Advances in Solid State Physics’, contains the written versions of most of the plenary and invited lectures. Many of the topical talks given at the numerous and very lively symposia are also included. Most of these were organized collaboratively by several divisions. They covered an extremely interesting selections of timely subjects.

The book truly reflects the status of the field of solid state physics in 2003, and explains its attractiveness, not only in Germany but also internationally. Never before have we seen such an outstandingly large number of contributing articles. In particular, one observes that what is nowadays called “Nanoscience” – namely the physics of quantum dots and wires, their optical properties, spin transport in nanostructures, and nanomagnetism – is flourishing. Soft matter and biological systems continue to attract a lot of interest, especially among young physicists. Thus, concerning the future development of our field, one can only be really optimistic!

Hamburg, April 2003

*Bernhard Kramer*



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