

Advances in Solid State Physics

Volume 45

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Advances in Solid State Physics

Advances in Solid State Physics is a book series with a history of about 50 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. Articles are submitted during the meeting. All articles are refereed.

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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Advances in Solid State Physics

45

With 203 Figures

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Preface

The spring meeting of the Arbeitskreis Festkörperphysik in the World Year of Physics 2005, the Einstein Year, was held from 4–11 March 2005 in Berlin, together with the yearly meetings of the other Arbeitskreise and Fachverbände of the Deutsche Physikalische Gesellschaft. The total number of conference attendees was about 8000, mostly young physicists.

The present volume of *Advances in Solid-State Physics* contains the written versions of selected invited lectures from the Arbeitskreis Festkörperphysik. Many topical talks given at the numerous symposia are included. Most of these were organized collaboratively by several of the divisions of the Arbeitskreis. They cover a number of very interesting and timely subjects.

The book presents, to some extent, the status of the field of solid-state physics in 2005 not only in Germany but also internationally. It is "nanoscience," namely the physics of quantum dots and wires, electrical transport, optical properties, spin transport in nanostructures, and magnetism on the nanoscale, that is of central interest to the physics community. Also, soft matter and biological systems are attracting increasing attention, especially from young physicists.

Hamburg, April 2005

Bernhard Kramer

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