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# New Developments in High Temperature Superconductivity

Proceedings of the 2nd Polish-US Conference  
Held at Wrocław and Karpacz, Poland,  
17-21 August 1998



Springer

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## Preface

This volume contains the proceedings of The Second Polish–US Conference on High Temperature Superconductivity which was held August 18–21, 1998 in Karpacz, Poland. The conference followed The First Polish–US Conference on High Temperature Superconductivity organized in 1995, proceedings of which were published by Springer–Verlag in 1996 (Recent Developments in High Temperature Superconductivity, Lecture Notes in Physics 475).

High Temperature Superconductivity (HTSC) in complex copper oxides has become a household name after twelve years of intense research following its discovery in 1986 by J.G. Bednorz and K.A. Müller. Because of the rapid growth of the HTSC field, there is a need for periodic summary and condensation both for scientists working in the field and, especially, for young researchers entering the field of oxide materials. Following the First Conference, it was recognized that an extended format of lectures perfectly satisfied that need, providing adequate time for experts from the international community to fully introduce and develop complex ideas. Thus, the format of the Second Conference brought together by cooperating scientists from the Institute of Low Temperature and Structure Research of the Polish Academy of Science at Wrocław, Northern Illinois University, and Argonne National Laboratory remained mostly unchanged. Again, we were delighted to receive enthusiastic responses from distinguished US and Polish scientists who were invited to participate. The focused sessions on microscopic description, physical properties, materials, crystal chemistry, and applications of HTSC provided forums for intense discussion of common research topics for US and Polish scientists. The Conference also provided a base for personal scientific interactions, especially important for young Polish researchers. The high level of scientific presentations, the high altitude, and perfect weather all contributed to a particularly pleasant atmosphere for the meeting.

The Conference included approximately 80 participants who contributed 21 invited lecturers (10 US and 11 Polish speakers), as well as 44 posters describing the current status of research on HTSC in Poland. The articles presented in this book span the field from the theoretical investigations of the pairing mechanism to the experiments relating to new materials applications. In an effort to present the most current status of HTSC, the texts were updated just prior to publication (fall of 1999). The editors anticipate that the book will become a valuable resource not only for the advanced reader, but also for a larger readership seeking reviews of current problems in HTSC.

We would like to express our sincere thanks to the scientific staff of the Institute of Low Temperature and Structural Research for their superior organization work. We want particularly to acknowledge the leading abilities of S. Gołąb in administration of the Conference and the cooperative spirit

of the team, comprising also D. Włosewicz, A.J. Zaleski, and A. Baszczuk, M. Matusiak, H. Misiorek, T. Plackowski, A. Sikora, Cz. Sułkowski.

The Conference was organized under the patronage of the Physics Committee of the Polish Academy of Sciences, and the U.S. Science and Technology Center for Superconductivity. On behalf of all the participants, we would like to express our sincere gratitude to the U.S. National Science Foundation and Polish State Committee for Scientific Research for their financial support which made this conference possible. We thank all the authors for their contributions.

Wrocław, De Kalb, and Argonne,  
January 2000

*The Editors*

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