Foreword

For the last decade, we have witnessed remarkable and continuous progress in semiconductor technologies. Huge prospects have opened up for fabrication of absolutely new devices based on nanoscale heterostructures and their implementation in future computer hardware and communications systems. The development of different devices utilizing quantum effects on low-dimensional semiconductor structures highlights many physical problems related to the device operation, optimization, limit performance, and the possibility of their incorporation into sophisticated systems. That is why — apart from significant efforts in the field of technological processes — further progress in various areas of engineering utilizing quantum devices strongly needs additional theoretical investigation. The latter is unthinkable without wide application of computer modeling.

This volume contains the papers presented at the International Workshop on Physics and Computer Modeling of Devices Based on Low-Dimensional Structures, held at Aizu-Wakamatsu, November 7-9, 1995. The goal of this workshop was to bring together the researchers actively working in the field of physics and computer modeling of quantum devices, and to promote international cooperation in this research area.

The program of the workshop included invited talks by distinguished scientists from many countries around the world. The president of the University of Aizu, T.L. Kunii, skillfully served as general chair of the workshop. The difficult selection of the best papers to be presented at the workshop was accomplished by the program committee, consisting of V. Ryzhii (University of Aizu), C. Hamaguchi (Osaka University), and V. Mitin (Wayne State University). Local arrangements were capably handled by the organizing committee, including M. Ershov, Y. Kesen, L. Khmyrova, M. Ryzhii, and K. Yamauchi. Last but not least, the workshop was held thanks to the help and dedication of the staff of the University of Aizu administrative office.

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