

PREFACE

This issue contains the Proceedings of the fourth International Symposium on Mesoscopic Superconductivity and Spintronics (MS+S2006) which was held from February 27th to March 2nd 2006 at NTT Atsugi R&D Center. The first International Symposium on Mesoscopic Superconductivity 2000 (MS2000) was held in March 2000. The main topic of the first symposium was the Andreev-reflection physics at superconductor/semiconductor and superconductor/normal metal interfaces. The scope of the second symposium was extended to include Spintronics, and it was decided to name the second International Symposium on Mesoscopic Superconductivity and Spintronics 2002 (MS+S2002). The third symposium on Mesoscopic Superconductivity and Spintronics 2004 (MS+S2004) was held to highlight a rapidly growing field of quantum computations by adding the subtitle “*In the light of quantum computation*”. The leading scientists of these research fields participated in the first MS2000, the second MS+S2002, and third MS+S2004. From the MS+S2004, the quantum coherence and manipulation have become important and common topics in the fields of Mesoscopic Superconductivity and Spintronics. The fourth MS+S2006 symposium was organized since many researchers looked forward to the discussions of the progress in these fields. The extensively discussed topics in the fourth MS+S2006 were “Control and readout of quantum states in superconducting qubits” and “Spin coherence and manipulation in nano-scale semiconductors” in addition to “Novel phenomena in mesoscopic superconductors”. We believe that the MS+S symposium series have played an important role in the progress of mesoscopic superconductivity, spintronics, and quantum computations.

A total of 131 papers were presented at the symposium, including 26 invited talks. The number of participants was 194; 141 from Japan and 53 from 18 foreign countries. This Proceedings contain 64 papers out of those presented at the symposium. We would like to thank all reviewers for their careful reading of the submitted papers. It is our hope that the Proceedings will be useful for many researchers interested in mesoscopic superconductivity, spintronics, and quantum computations. Finally, we would like to thank all participants for their fruitful and exciting discussion throughout the symposium. The symposium was sponsored by JST (Japan Science and Technology) and NTT Basic Research Laboratories. The Organizing Committee would like to express its sincere gratitude to them for their support.

June 2008

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