
FOREWORD

Special Section on Recent Progress in Organic Molecular Electronics

Recent progress in electronics and semiconductor technology has reached to such a stage that the device structure has shrunken to nanometer scale. Questions have been raised about how long the Moore's law can survive in future. The micro-fabrication process of inorganic semiconductor has been achieved by "sculpt from bulk" process, thrust by advancement of lithography. On the other hand, with the molecular electronics, devices can be developed in an alternative strategy by assembling from nanoscale units of organic molecules. With this respect, organic electronics has been regarded as a promising candidate to achieve a breakthrough in electronic devices. Furthermore, recent trend had added another perspective of organic electronics, taking advantage of flexibility, large-scale processability, and environmentally-friendly materials and fabrication methods. The organic molecular electronics is not a simple substitute for conventional semiconductors but is a new paradigm that can inaugurate an era of human friendly and sustainable society.

In the Electronics Society of IEICE, the Technical Committee of Organic and Molecular Electronics (OME) has taken the initiative to pursue technical development of this field. One of its important activities is the International Symposium on Organic Molecular Electronics (ISOME), which has been organized biannually since May 2000 to keep track of cutting-edge research status in this field. The 8th ISOME (ISOME 2014) was held successfully from May 15 to 16, 2014 at Tokyo University of Agriculture and Technology. The symposium was blessed with 108 presentations, including two plenary lectures, 18 invited talks, and 88 contributed papers. 135 participants from diverse countries joined lively discussion on the emerging topics of organic and molecular electronics. The papers spanned variety of aspects in organic materials for electronics, including fundamental physics and chemistry (12 papers), fabrication and characterization (32 papers), electronic properties and devices (20 papers), displays and lightings (6 papers), optical properties and devices (10 papers), energy-related devices (15 papers), and bio materials and devices (13 papers), but considerable number of these papers can be classified in interdisciplinary area. The activity of this symposium literally symbolized the bright future of organic and molecular electronics.

In conjunction with ISOME 2014, a special section of "Recent Progress in Organic Molecular Electronics" is issued in this volume of IEICE Transactions on Electronics. This section consists of 19 papers including an invited paper. Pertinent special issues have been published biannually since 2000 (Vol. E83-C, No. 7). These issues integrate invaluable record of the development in this field, providing an important source of information to update the forefront of organic molecular electronics and to gain a new insight into the future of this field. On behalf of the editorial committee, I would like to express sincere gratitude to the contributors as well as the Electronic Society of IEICE.

Special Section Editorial Committee:

Hiroaki Usui (Tokyo Univ. Agricul. & Technol.), Keizo Kato (Niigata Univ.), Naoki Matsuda (AIST), Kiyoshi Takimoto (Canon Electronics), Tatsuo Mori (Aichi Inst. Technol.), Akihiro Kohno (NTT), Shinichiro Inoue (NICT)

Hiroaki Usui, Guest Editor

Hiroaki Usui (*Member*) received B. E., M. E., and Ph. D. degrees in 1980, 1982 and 1988, respectively, from the Department of Electronics of Kyoto University. From 1985 to 1991 he was a research associate at the faculty of engineering of Kyoto University. Since 1991, he has been a faculty member of Tokyo University of Agriculture and Technology, and since 2007 he has been a professor in the Department of Organic and Polymer Materials Chemistry. In 1994, he was with Max-Planck-Institute for Polymer Research as a visiting scientist. He served as a chair of Technical Committee of OME for the physical years of 2011 and 2012. His current interest is in the optical and electronic applications of organic thin films from the standpoint of the film processing technology.

