FOREWORD

Special Section on 5G Radio Access Networks — Part II: Multi-RAT Heterogeneous Networks and Smart Radio Technologies

We are facing an important timing to design the next generation cellular system called 5^{th} generation (5G). It is widely accepted that the 5G system should be quite different and widely expanded from the previous systems. Among many issues, the most important difference is, we believe, introduction of heterogeneous networking and smart radio technologies to completely change functionality of cellular services and our lives in the next 5 to 10 years. This is actually the strongest motivation to organize this special issue called Multi-RAT heterogeneous networks and smart radio technologies. Although discussion on designing the 5^{th} Generation systems is not started yet, most of the engineers believe that many revolutional functionality should be supported by the 5G systems compared to the previous generations.

In this special section, we received 16 paper submissions, all are quite good match on our expected themes, and accepted 6 papers based on careful and fair review process. Though the number of accepted papers is not so large, these paper covers very wide range of technical fields in this special section, which would be useful and mandatory for 5G system design. In addition, we have invited two papers, which support heterogeneous network related subjects, one for multi RAT selection and the other for millimeter wave applications to heterogeneous networks.

Through edition of this special section, the editorial board members believe that contents of this special section include very important technical future vision and useful insight for the development of 5G cellular systems.

Finally, as the guest editor-in-chief, I would like to sincerely appreciate all the authors, all the reviewers and editorial committee members for their kind contributions and their efforts for publications of this special section.

Seiichi Sampei (Osaka University), Guest Editor-in-Chief

Seiichi Sampei *(Fellow)* received the B.E., M.E. and Ph.D. degrees in electrical engineering from Tokyo Institute of Technology, Japan, in 1980, 1982 and 1991, respectively. From 1982 to 1993, he was with the Communications Research Laboratory, Ministry of Posts and Telecommunications. During 1991 to 1992, he was at the University of California, Davis, as a visiting researcher. In 1993, he joined the Faculty of Engineering, Osaka University, and he is currently a Professor in the department of Information and Communications Technology, Osaka University. He has developed adaptive modulation, intelligent radio transmission/access, cognitive wireless networking, wireless distributed network techniques and millimeter wave technologies for wireless access systems. He received the Shinohara Young Engineering Award, the Achievements Award, Communications Society Best Paper Award and Best paper Award from the IEICE, the Telecom System Technology Award from the Telecommunication Advancement Foundation, the DOCOMO Mobile Science Award from Mobile Communication Fund, and the Ericsson Telecommunications Award. He is a member of the Institute of Image Information and Television Engineers (ITE) and a Fellow of IEEE.