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## FOREWORD

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### Special Section on Recent Progress in Electromagnetic Theory and Its Application

The purpose of this special section is to present a collection of original papers that give an overview of recent progress of research and development in electromagnetic theory and its applications, including those related papers presented at the 2014 Symposium on Electromagnetic Theory, held in Gunma, Japan on November 20–22, 2014. Presentations in the International Symposia and Meetings held during 2014, which include 2014 IEEE AP-S Symposium, URSI 2014 GASS, PIERS 2014 and ISAP 2014, were also considered to be the parts of this special section. In response to the call-for-papers, we received some potential paper manuscripts. After careful review, 12 papers including one invited paper and 4 brief papers, were accepted in this special section.

The invited paper “Electromagnetic Characteristics of Transverse Acousto-optic Waveguide Device in Integrated Optics” is based on the invited lecture given by Dr. Yasumitsu Miyazaki at the 2014 Symposium on Electromagnetic Theory, and is a good overview of his long-term intensive research, however, it contains also much innovative ideas from his recent research work.

The topics of accepted papers include various topics such as electromagnetic scattering theory, a new approach in scattering analysis and inverse problem and their applications. We hope that the readers find this special section useful in the research of the electromagnetic theory and its applications. We would like to express our sincere appreciations to all the authors of contributed papers for their efforts in preparing the manuscripts and to all the reviewers for their adequate judgments and valuable comments.

We are also indebted to the editorial committee members for their dedicated efforts in organizing this special section. Especially, we would like to express our sincere thanks to Professor Toshihiko Shibazaki of Tokyo Metropolitan College of Industrial Technology and Prof. Ryoichi Sato of Niigata University, who played important roles in the publication of this special section.

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Motoyuki Sato and Hiroshi Shirai, Guest Editors-in-Chief

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**Motoyuki Sato** (*Member*) received the B.E., M.E degrees, and Dr. Eng. degree in information engineering from the Tohoku University, Sendai, Japan, in 1980, 1982 and 1985, respectively. Since 1997 he is a professor at Tohoku University and a distinguished professor of Tohoku University since 2007, and he was the Director of Center for Northeast Asian Studies, Tohoku University during 2009–2013. From 1988 to 1989, he was a visiting researcher at the Federal German Institute for Geoscience and Natural Resources (BGR) in Hannover, Germany. His current interests include transient electromagnetics and antennas, radar polarimetry, ground penetrating radar (GPR), borehole radar, electromagnetic induction sensing, interferometric and polarimetric SAR. He has conducted the development of GPR sensors for humanitarian demining, and his sensor ALIS which is a hand-held dual sensor, has detected more than 80 mines in mine fields in Cambodia since May 2009. He is a visiting Professor at Jilin University, China, Delft University of Technology, The Netherlands, and Mongolian University of Science and Technology. Currently he is the Chair of the Technical Committee on Electromagnetic Theory in Electronics Society of the IEICE. He was the technical chair of GPR96 and the general chairperson of IGARSS2011 and a Fellow of IEEE.



**Hiroshi Shirai** (*Fellow*) received the B.E. and M.E. degrees in Electrical Engineering from Shizuoka University, Japan, in 1980 and 1982, respectively, and the Ph.D. degree from Polytechnic University, New York in 1986. Since April 1987, he has been with Chuo University, Tokyo, Japan, where he is currently a Professor and an Associate Dean of Faculty of Science and Engineering. He has been serving as a committee member of various technical societies and international meetings. He received the R.W.P. King Best Paper Award from the Antennas and Propagation Society of the IEEE in 1987. His current research interests include wave propagation and diffraction in time harmonic and transient domains. Dr. Shirai is a Fellow of the Electromagnetics Academy, a senior member of the IEEE, and a member of Sigma Xi, the IEE of Japan.

