Special Issue on Advanced Materials and Sensing Technologies on IoT Applications: Part 2-1

Preface

In recent years, applications of advanced materials and sensing technologies in electronic and mechanical devices have become rapidly developing fields. Manufacturing is the economic lifeline of a country and has been regarded as a labor-intensive industry. Therefore, to cut production costs, devices for Internet of Things (IoT) have been widely developed. IoT is composed of the most integrated end devices and facilities, such as intelligent sensors for internal control, industrial systems, mobile terminal systems, floor control systems, and home intelligent facilities. Smart devices and external control information are utilized with the hope to attract companies that manufacture high-value-added products in the fields of aerospace, automotive, IT molds, textiles, optoelectronics, watches, medical devices, defense, automation, energy, and semiconductor-related parts and components to drive the country's economy. Therefore, the key to maintaining a competitive advantage of domestic manufacturing in the future is still to rely on the development of advanced manufacturing and precision machinery-related technologies. The scope of this Special Issue "Advanced Materials and Sensing Technologies on IoT Applications" covers fundamental materials used in electronic, mechanical, and electrical engineering including their synthesis and integration with many elements, the design of electronic and optical devices, sensing technologies, evaluation of various performance characteristics, and exploration of their broad applications to industry, environmental control, materials analyses, and so forth. Part 2-1 of this special issue selects nine excellent papers about three categories of sensors and materials fields:

(1) Physical/Mechanical Sensors: "Hydroacoustic Sonification and Flow Pattern Investigation of Venous Pulsatile Tinnitus Using MEMS Hydrophone Sensing and Dye Flow Visualization Techniques: Pilot 3D Printing, Computational Fluid Dynamics, and Psychoacoustic Study" presented by Hsieh *et al*. and "Development of a Simple Fluorescence Sensing System for Carbonyl Stress in Urine" presented by Huang *et al*.

(2) Materials: "Cytotoxicity of ZnO Paper against Cancer Cells" presented by Liao *et al*.

(3) Related Technologies: "Using Three-dimensional Convolutional Neural Networks for Alzheimer's Disease Diagnosis" presented by Lin and Lin, "Design of Industrial Control System Secure Communication Using Moving Target Defense with Legacy Infrastructure" presented by Li *et al*., "Combination of Variational Mode Decomposition for Feature Extraction and Deep

Belief Network for Feature Classification in Motor Imagery Electroencephalogram Recognition" presented by Zhang *et al*., "Development of Smart Home Gesture-based Control System" presented by Wang *et al*., "Experiment and Simulation Analysis of Micro-type Circular Rod Screw Thread for SUS304 Stainless Steel in Machining Process" presented by Chen *et al*., and "Evaluation of Intensified Colorectal Cancer Treatment Using Model Based on Delphi Method, Fuzzy Logic, and Analytical Hierarchy Process (DFAHP)" presented by Wu *et al*.

The guest editors would like to thank the authors for their contributions to this special issue and all the reviewers for their constructive reviews. We are also grateful to Ms. Misako Sakano for her time and efforts in the publication of this special issue for *Sensors and Materials*.

Teen-Hang Meen
Distinguished Professor, Department of Electronic Engineering
National Formosa University, Taiwan

Wenbing Zhao
Professor, Department of Electrical Engineering and Computer Science
Cleveland State University, USA

Cheng-Fu Yang
Professor, Department of Chemical and Materials Engineering
National University of Kaohsiung, Taiwan