

## SPECIAL ISSUE ON NOVEL SENSORS AND RELATED TECHNOLOGIES ON IOT APPLICATIONS: PART 4-2

### PREFACE



In recent years, applications of novel sensors and related 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 the internet of things (IoT) have been widely developed. IoT is composed of 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 of attracting companies that manufacture high-value-added products in the fields of aerospace, automotive, IT molds, textiles, optoelectronics, watches, medical devices, automation, energy, and semiconductor-related parts and components to drive the country's economy. Therefore, the key to maintaining a competitive advantage in domestic manufacturing in the future is still to rely on the development of novel manufacturing and precision machinery-related technologies. The scope of this Special Issue, "Novel Sensors and Related Technologies on IoT Applications" covers fundamental sensors and 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 4-2 of this special issue selects nine excellent papers about five categories of sensors and materials fields:

- (1) Physical/Mechanical Sensors: "Using MSC.Patran as a Tool for the Numerical Stress Analysis of a Shock-loaded Bullet-resistant Door" presented by Hsu *et al.*
- (2) Bio/Chemical Sensors: "Metformin Intervention in Rats with Acute Gouty Arthritis" presented by Ni *et al.*
- (3) Materials: "Luminescent Properties of Tm<sup>3+</sup>-doped BaY<sub>2</sub>ZnO<sub>5</sub> Phosphors Prepared by Sol-Gel Method with Different Urea Concentrations" presented by Chen *et al.* and "Effects of La<sup>3+</sup> Ion Doping Concentration on the Crystal Structure and Photoluminescence Properties of Y<sub>0.998</sub>Pr<sub>0.002</sub>InGe<sub>2</sub>O<sub>7</sub> Single-phased White Light-emitting Phosphor" presented by Teoh *et al.*

(4) Related Technologies: “Research on Energy-saving Strategy of Wireless Sensor Network Based on Improved Ant Colony Algorithm” presented by Ni *et al.*, “Emotion-reading Nursing Care Environment Based on Facial Expression Recognition” presented by S.-Y. Chen and C.-C. Chen, and “Improvement in Vibration of Hybrid Powertrain with Combined Control Methods” presented by Lan *et al.*

(5) Sensor Applications: “Use of Internet of Things to Improve E-government Public Services” presented by Chen *et al.* and “Simulation Method for Non-line-of-sight Collision Avoidance Warning System” presented by Guo *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 on 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