Special Issue on Novel Materials and Sensing Technologies on Electronic and Mechanical Devices Part 1

Preface

In recent years, applications of novel materials and sensing technologies on 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) are 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 of attracting companies that manufacture high-value-added aerospace, automotive, IT mold, textile, optoelectronic, watch, medical, defense-related, automation, energy, and semiconductor-related parts and components to drive a country's economy. Therefore, the key to keeping up with the 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 "Novel Materials and Sensing Technologies on Electronic and Mechanical Devices" covers fundamental materials of electronic, mechanical, and electrical engineering, including their synthesis engineering, integration with many elements, designs of electronic or optical devices, evaluation of various performance characteristics, and exploration of their broad applications to industry, environmental control, materials analyses, and so forth. Part 1 of this special issue selects 14 excellent papers in five categories of sensors and materials fields:

(1) Physical/Mechanical Sensors: "Positional Regulation of Electrostatic Micro-electromechanical Actuator via Adaptive Two-stage Sliding Mode Control" presented by Yang *et al*.

(2) Bio/Chemical Sensors: "Use of Temperature Sensors in Testing Soil Humus Content in Saline Wetland in Response to Freeze–Thaw Cycles" presented by Liu *et al*.

(3) Related Materials: "Influence of Environmental Conditions on Electrical Stability of Pentacene Thin-film Transistors with Cross-linked Poly(4-vinylphenol-co-methyl methacrylate) Gate Dielectric Layer" presented by Chintalapalli *et al*. and "Effects of Heat Generated during Grind Hardening on Hardness and Microstructure of Alloy Metal: Optimal Process to Improve Efficiency" presented by Gao *et al*.

(4) Related Technologies: “Design of Multiobjective Optimal Laser Ablation Parameters of Hole Opening in Package-on-package Process” presented by Kuo, “Innovation in Optimization of Virtual Space Experience Using Interactive Engine and Device—Example of a Song Dynasty Landscape Painting” presented by Wu and Chen, “Offline Deep-learning-based Defective Track Fastener Detection and Inspection System” presented by Hsieh *et al*., “Enhanced Identification Algorithm Based on Dynamic Slots Collision Tracking in Radio Frequency Identification Systems” presented by Lin and Liang, and “Partial Least Squares Optimization Method and Path Analysis Integration for Chinese Medicine Data” presented by Li *et al*.
(5) Sensor Applications: “Human and Robotic Fish Interaction Controlled Using Hand Gesture Image Processing” presented by Angani *et al*., “Lead-lag Swimming Control of Robot Fish Using Color Detection Algorithm” presented by Angani *et al*., “Realization of 3D Aqua Hologram Augmented Reality of Robot Fish” presented by Angani *et al*., “Computed Tomography Image Recognition with Convolutional Neural Network Using Wearable Sensors” presented by He *et al*., and “Assessment of Health of Friction Pair in Sliding Bearing Using Vibration Sensor and Continuous Wavelet Transform Time-frequency Images” presented by Huang *et al*.

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