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ON ELECTRONIC AND MECHANICAL DEVICES PART 2(1)
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SPECIAL ISSUE ON NOVEL MATERIALS AND SENSING TECHNOLOGIES ON ELECTRONIC AND MECHANICAL DEVICES PART 2(1)

PREFACE



In recent years, applications of novel 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) 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 to attract 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 2 of this special issue selects 18 excellent papers about five categories of sensors and materials fields:

- (1) Physical/Mechanical Sensors: "Adaptive Speed Identification Air-gap Flux Vector-controlled Induction Motor Drive Based on Firefly Algorithm" presented by Luo *et al.*, "Speed Estimation of Direct Torque Control Permanent Magnet Synchronous Motor Drive Based on Back Electromotive Force" presented by Luo *et al.*, "High-speed and High-current Phase Width Modulator Driver for High-power Infrared LEDs" presented by Su *et al.*, and "Effect of Center of Mass on Vibration-sensing Technology for Diesel Engine" presented by Liao *et al.*
- (2) Bio/Chemical Sensors: "Prediction of Atrial Fibrillation Cases: Convolutional Neural Networks Using the Output Texts of Electrocardiography" presented by Heo *et al.*
- (3) Related Materials: "Effects of Freeze–Thaw Cycles on Soil Properties and Carbon Distribution in Saline-alkaline Soil of Wetland" presented by Liu *et al.*, "Use of Pyrolysis Oil from Scrap Tires with Control Module Adjustment of Diesel Engine" presented by Leu *et al.*,

and “Effect of Different Fuels (Methane, Methanol, and Hydrogen) on Rotary Engine Operation” presented by Leu *et al.*

(4) Related Technologies: “Research on Novel Fuzzy Control Strategy of Hybrid Electric Vehicles Based on Feature Selection Genetic Algorithm” presented by Zhu *et al.*, “Hyperparameter Optimization of Deep Learning Networks for Classification of Breast Histopathology Images” presented by Lin *et al.*, “Hemodynamic Performance Validation of Customized Handmade Trileaflet-valved Conduits Using Taguchi Method and Likelihood Degree Estimation” presented by Lin *et al.*, “Power Dispatch Combining Meteorological Forecast and Dynamic Game Model in Multivariate Distributed Power Generation Systems” presented by Chang *et al.*, “Interactive Cognitive Training Tool Designed for Autism Spectrum Disorder Children” presented by Liu *et al.*, “Applying Integrated Grey System Theory and Sensor Technology to Study Influence of Cutting Conditions on Thermal Error Modeling of Machine Tools” presented by Wang *et al.*, “Application of Optimized Sliding Mode Control Strategy in Ship Electric Energy Conversion Process” presented by Zhen *et al.*, and “Big Data Analysis for Effective Management of Power Distribution Network” presented by Chen *et al.*

(5) Sensor Applications: “Smart Driver Drowsiness Detection Model Based on Analytic Hierarchy Process” presented by Chang *et al.* and “Application of Internet of Things in Smart Farm Watering System” presented by Hsu *et al.*

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