Special Issue on Function and Material Design for Advanced Gas Sensors

Preface

These days, high-performance gas sensors are increasingly required in the fields of reactor control in a vehicle or a plant, monitoring for environmental protection, health care technology with gas monitoring, and so forth. With these expansions in the areas of applications of gas sensors in recent chemical sensor technology, the design and development of highly sensitive and highly selective sensor devices have become very important. The use of functionally designed materials, such as nanowires, nanosheets, and 2D and 3D structural materials, is one of the new key points for developing high-performance gas sensors.

This special issue focused on "Function and Material Design for Advanced Gas Sensors". It includes gas sensors based on functionally developed receptors and/or transducer materials, unique structured material design, newly produced and synthesized materials, and so forth. The topics include sensors using nanomaterials, nanoparticles, structure-controlled materials, sensor devices based on microsemiconductors, newly designed solid electrolytes, new sensing methods with electrochemical detection, sensing systems, smart systems, and gas sensing for health, safety, and security care. Here, we selected very interesting papers on sensors with advanced functions and/or design. We consider that these papers have much impact on chemical gas sensor research, and give new insights on functional sensor design.

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