



## FET and Field Effect-Based Sensors

Guest Editor:

**Dr. Tatsuro Goda**

Department of BioMedical  
Engineering, Toyo University,  
2100 Kujirai, Kawagoe, Saitama  
350-8585, Japan

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### Message from the Guest Editor

In 2022, our society will enter the Trillion Sensors Universe where things are connected on the internet with digital information through many tiny sensors in the field of medicine, agriculture, environment protection, homeland security, and so on to realize the Smart Society. Field-effect transistors (FETs) have a long history and good results in sensing and imaging applications due to their CMOS processing and wide applicability as an interface and are still good candidates for physical, chemical, ionic, and biological sensing in the next generation. One example is the use of FETs for label-free biosensing via electrostatic interactions between carriers in semiconductor materials and target analyte, which is specifically recognized on a gate dielectric. Nowadays, field-effect devices based on organic materials (e.g., conducting polymers) are developed with features on flexibility, lightness, biocompatibility, low cost, and mass productivity. An understanding of both the basics and applications is essential for further development.





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### Prof. Dr. Ai-Qun Liu

1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, China  
2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore 639798, Singapore

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*Micromachines* Editorial Office  
MDPI, Grosspeteranlage 5  
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