Special Issue on Biosensing Devices and Systems

Preface

It is our great pleasure to publish this special issue on biosensing devices and systems. Biosensing is a field characterized by its interdisciplinary nature, covering various fields such as material science, biochemistry, electrochemistry, electrical and electronic engineering, fluid engineering, mechanical engineering, information and communication, mathematical analysis, and recently, the use of machine learning. In terms of implementation, not only the conventional fields such as biosensors as basic research, environment, healthcare, and medicine, but also applications such as interfaces for the realization of the metaverse are emerging. In line with this trend, the base of implementation methods, such as wearable sensors and sensors implanted in the body, is also expanding. This special issue comprehensively dealt with the latest research results related to sensor materials, sensors utilizing them, systems for implementation, and the use of AI.

We had received submissions of the latest research results on biosensors and systems, including electrochemical sensing materials and sensors utilizing them, various implantable sensing devices such as brain imaging and intraocular sensing, and proposals for new sensing methods using machine learning. After rigorous peer review and revision, six papers were finally accepted for publication. The paper on the sensor implanted in the body is a promising study on future interfaces including medicine and metaverse deployment, and the paper on the sensing method using machine learning to let AI find differences in data is a pioneering research that is distinct from the conventional physical model-based analysis method and can be said to simulate information processing in humans. The papers published in this special issue not only present the current status of this field, but also provide a look ahead to future trends. We are confident that these papers will be of great interest to our readers and will promote further research in this field.

We deeply appreciate the authors' enthusiastic research activities and preparation of the manuscripts. We would also like to express our sincere gratitude to the reviewers and the editorial staff of Sensors and Materials for their fair and rigorous peer review and their efforts to publish the papers.

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