

## Biosensors and Bioelectronics

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### Editorial

The Journal of Sensor Networks and Data Communications is a peer-reviewed, open access journal, which means that all published articles are made freely available online without a subscription, and authors retain the copyright of their work. The journal is supported by an experienced international editorial board team invites you to an opportunity of publishing your research experience to the professional societies.

We are introducing Special Issue entitled as “Biosensors and Bioelectronics”. Special Issue of “Biosensors and Bioelectronics” is an international interdisciplinary journal serving researchers with an interest in broad range of diagnostic and electronic/optical devices such as sensors, drug delivery, DNA sequencers, electronic noses, lab-on-a-chip and etc.

Bioelectronics is the emerging discipline as a result of the convergence of biology and electronics and it has the potential to significantly impact a number of areas including healthcare and medicine, security, forensics, and environmental issue and the food supply. It studies understanding of biology that may provide powerful insights into efficient assembly processes, devices, and architectures for nanoelectronics technologies.

There is a growing worldwide effort within the research and industrial communities to combine the advantages of sensor technology and the life sciences into a field called ‘Biosensors’. The idea is to combine device fabrication capabilities of the microelectronics and bio industries with biotechnology and medicine, in order to produce new classes of biomedical devices having the advantages of both fields for improving quality of life. The objective of this research is to expand our knowledge in fundamentals of sensor technology so biological fluids can be treated in a reasonable manner to detect microbial food pathogens and detect proteins as biomarkers for a number of diseases. The field’s activity is to address researches on understanding behaviour of proteins responding to change in environment and find the way of constructing fluidic devices.

These sensors have been integrated in the last few years in portable devices because of their low cost, small size, low power consumption and high performance. Building sensors have been made due to recent significant advances in technology in small-scale electrical and optical devices.

In order to achieve the objectives of biosensor technology related researches, a fair amount of efforts are being focused in the following areas:

1. Applying the technologies to material/structures in molecular level and building blocks of single cells to reveal structure information for medical device applications.

2. Developing devices to detect and manipulate biomolecules.
3. Understanding behavior of biomaterials in integrated systems.

One of the examples of biosensor systems resulted from marriage of sensitive biosensor design with fluidic sample manipulation is lab-on-a-chip (LOAC). The concept was originated from microfluidics related ideas. However, it falls into nanofluidic field now because of shrinking size of devices and reaction volume of fluidics in order to increase sensitivity. Basically, LOAC has flow channels etched into glass or silicon substrates integrated with flow injection/pumping system allowing for fluid transport within the chip and sample processing for a variety of detection. In the area of biosensor technology, LOAC is the complete system which can do a complete bio-sample processing and analysis system on a chip scale. A bio-sample with a small amount of fluid is introduced to the chip, then mixed with reagents and buffers, reacted to form products followed by mobilization of it to a separation unit for analysis, integrated on the same wafer. LOAC will have a significant impact on the diagnostics industry, both in terms of centralized lab analysis and point-of-care testing.

Bioelectronics advances our fundamental concepts, creates knowledge for molecular to organ systems levels, and develops innovative devices or processes for the prevention, diagnosis, and treatment of disease in order to restore to patients’ normal/healthy conditions to improve health. Bioelectronics covers a wide range of topics at the interface of biology and electronics. One aspect of bioelectronics is the application of electronics to problems in not only biology, medicine, but security. This includes electronics for both detection and characterization of biological materials. In addition, bioelectronics is using biological systems in electronic applications. Bioelectronics also focuses on physically interfacing electronic devices with biological systems. Bioelectronics has the immense potential to changes peoples’ lives. Moving bioelectronics forward requires innovation among the broad areas of measurements and analyses, fabrication, biocompatibility, and power sources.

If your research touches on the topic addressed above, then submit your article and share your research findings with the professional societies. We invite you to the Special Issue of “Biosensors and Bioelectronics” to share your findings. Please submit your papers to the Journal of Sensor Networks and Data Communications, Special Issue entitled as “Biosensors and Bioelectronics”.

The journal will accept reviews and papers of obvious relevance to the community, which describe important new concepts, underpin understanding of the field or provide important insights into the practical application, manufacture and applications of biosensors and bioelectronics.

Once we receive your manuscripts, you will receive a timely feedback and decisions about publications to ensure that your papers

would receive visibility rapidly. Upon publication, your papers are to be viewed quickly.

If you would like to have more information of the Journal of Sensor Networks and Data Communications (Special Issue entitled as "Biosensors and Bioelectronics" or discuss how well your paper has a

good fit for our journal, please feel free to contact the Editorial Board Team ([editor.sndc@omicsinc.com](mailto:editor.sndc@omicsinc.com)). We're always welcome your inquires and answer your questions. We look forward to receiving your articles soon.

This article was originally published in a special issue, entitled: "**Biosensors & Bioelectronics**", Edited by Daniel Choi