



Neural Electrodes in Bioelectronic Medicine

Guest Editors:

Dr. Ivo Strauss

Postdoctoral Researcher,
Professur für Biomedizinische
Mikrotechnik, Institut für
Mikrosystemtechnik (IMTEK),
Albert-Ludwigs-Universität
Freiburg, Georges-Köhler-Allee
201, D-79110 Freiburg, Germany

Dr. Andres Pena

Assistant Research Professor,
Institute for Integrative and
Innovative Research (I3R),
University of Arkansas,
Fayetteville, AR, USA

Deadline for manuscript
submissions:

closed (20 March 2022)

Message from the Guest Editors

Dear Colleagues,

Bioelectronic medicine (BM) is an upcoming field aiming to substitute pharmaceutical treatments by interfering with bioelectrical activity from the nervous system. BM has the advantage of acting immediately, whereas pharmaceuticals have to be metabolized by the body to take effect. Additionally, BM is very target-specific, and may therefore help to reduce drug side effects.

Neural electrodes are an essential interface in BM. They allow us to stimulate and record, and therefore interfere with neural tissue activity. Among others, neural stimulation was used to restore sensory feedback in amputees and motoric functions in SCI patients. Other groups demonstrated the potential to stimulate or record from the autonomic nervous system, restoring heart rate or digestive disorders and bladder or sexual dysfunction.

Despite recent advancements, the application of neural electrodes in long-term and clinical applications remains very challenging. Issues such as material failure, tissue inflammation, and low charge injection or SNR limit the application of neural electrodes in clinical applications.





micromachines



an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Nam-Trung Nguyen

Queensland Quantum and
Advanced Technologies Research
Institute, Griffith University, West
Creek Road, Nathan, QLD 4111,
Australia

Message from the Editor-in-Chief

Micromachines (ISSN 2072-666X) is a forum for cutting-edge interdisciplinary research on micro and nanoscale science and technology. We emphasise the practical, real-world value of micro and nanotechnologies that will place *Micromachines* in a leading position among engineering and technology journals.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), PubMed, PMC, Ei Compendex, dblp, and other databases.

Journal Rank: JCR - Q2 (Instruments and Instrumentation) / CiteScore - Q1 (Mechanical Engineering)

Contact Us

Micromachines Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/micromachines
micromachines@mdpi.com
[X@micromach_mdpi](https://twitter.com/micromach_mdpi)