



The Project

Bioelectronic medicine is used to treat disorders that pharmaceutical medicine cannot. They allow us to do interface with the human body in the electrical domain, which bypasses the need for conventionally used non-specific and slow acting drugs.

By stimulating and recording the peripheral nervous system in a closed loop fashion we can start to realize new technology referred to as Neuroprosthetics. The creation of such a technology has to face several challenges, like its miniaturization, biocompatibility and power efficiency. The use of conductive polymers has many advantages with respect to overcoming these obstacles.

We are working towards implantable electrodes to allow for integration with the physiology of the human body and to achieve efficient neuromodulation of the nervous tissue. You will design and fabricate these type of devices and test them in our labs. The project's final goal is to develop the next generation of electrodes, capable of realizing the new era of neuroprosthetics and bioelectronic medicine that lies ahead.

Practical work

This project focuses on fabricating and characterizing the next generation of electrodes that can be used for bioelectronic applications. During the project you will:

- Review literature, design and execute experiments
- Use and optimize electrode existing microfabrication methods
- Fabricate electrode prototypes and optimize their architecture
- Test your electrodes on a peripheral nerve model and do experimental data analysis
- Report the results in a clear way to a multidisciplinary team

Where will you be working

You will be in Microsystems group with the Neuromorphic engineering team. You will be one of the users of the new lab facilities that just been set up. Also, you will collaborate and work with the imec research and development team here in Eindhoven.

You want to be at the interface of neuroscience and electronics?

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