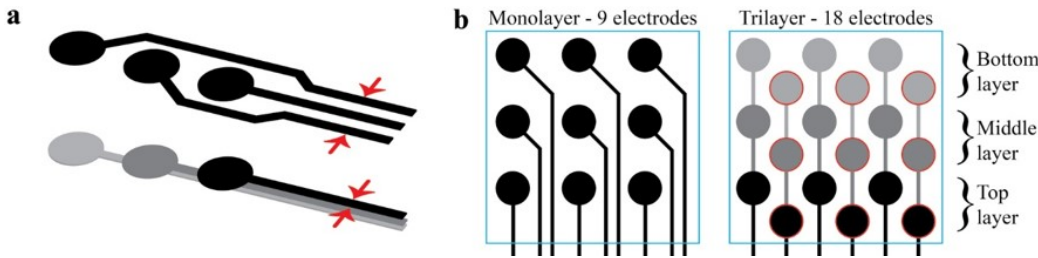


# High-density implantable electrode arrays



Sketch of the electrodes design for multilayer high-density probes. (a) Placement of three metal electrodes with interconnects in the case of a monolayer (top) and a three-layer configuration (bottom). Red arrows indicate the width dedicated to interconnects, which is greatly reduced in three-layer configuration. (b) Sketch of an electrode array with monolayer (left) and three-layer (right) configuration. Three-layer configuration allows higher density.

## Ref. Nr

6.1675

## Keywords

neural prosthesis, high-density array, bioelectronic medicine, neurotechnology

## Intellectual Property

WO2018/103828 (EP, US, JP)

## Publications

Journal of Neural

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## Description

Neural stimulation for precision electronic medicine requires soft and biocompatible neural interfaces with a high number and density of stimulating contacts.

The technology addresses this need by providing a new fabrication process on soft and flexible materials resulting in soft and flexible arrays with an unprecedented density of electrodes for interfacing with biological tissues (patent: **WO2018/103828**).

The method to provide a 3D structure of the electrode array relies on a multilayer placement of the interconnects within a flexible substrate and allows maintaining the electrode contacts at the same level within the tissue while increasing density.

## Advantages

- High resolution stimulation
- Lower electrochemical impedance and a higher charge storage capacity.
- Scalable large area device for neurostimulation of large tissues or multiple brain areas

## Applications

- Retinal stimulation
- Acute and chronic cortical stimulation
- Central nerve stimulation
- Somatic and autonomic nerve stimulation
- Spinal cord stimulation