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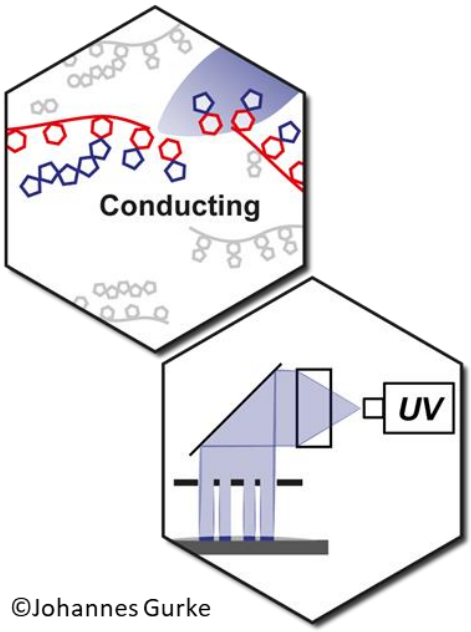
Innovative materials for biotechnology and electronics

Description

The *Applied Photochemistry and 3D Bioelectronics* working group, led by Dr Johannes Gurke, is researching new ways to manufacture bioelectronic devices. Their work ranges from chemical material development to the integration of materials into initial device prototypes. The aim is to develop flexible and biocompatible materials and devices that are suitable for interaction with biological tissue.



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A better understanding of the brain is crucial to improving treatment for people with neurological disorders such as epilepsy. However, current technologies for measuring neural activity are reaching their limits, as the methods in use are rigid and inflexible and make it difficult to produce complex three-dimensional structures.

To overcome these limitations, the working group is focusing on the advantages of modern manufacturing techniques such as 3D printing. Although 3D printing already offers many possibilities for the precise manufacture of complex structures, its potential in this area has not yet been fully exploited. Using high-precision stereolithography, conductive polymers are to be produced specifically by means of light. These polymers are integrated into a special photoresin that is highly conductive, biocompatible and flexible and is optimised for modern 3D printing systems. Building on this, both conductive and insulating areas are to be created within a single material - a crucial prerequisite for the development of flexible, functionally electrodes in order to be able to decide on suitable measures quickly.

Literature

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Applications
- 3D printing
- Photochemistry
- Polymer chemistry
- Bioelectronics
- Healthcare

Keywords
- Conductive materials
- Stereolithography
- Microelectrode arrays

Interest in cooperation
- Research-based collaboration
- Contract research
- Industry-sponsored research

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