



# Comfortable, chronic EEG acquisition using flex-printed electrode arrays

## EEG laboratory to go

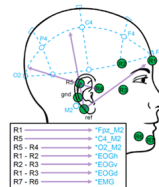
Experts at Fraunhofer IDMT in Oldenburg are working in collaboration with Carl von Ossietzky University Oldenburg on mobile, unobtrusive electroencephalography (EEG) systems that are convenient to wear in everyday life. EEG measures the electrical activities of the brain and thus conveys meaningful information, e. g., about states of attention or health. Currently, this technology has mainly been used in stationary applications - but there is great potential for its use in everyday life.

### Competencies in hardware, signal acquisition and data analysis

The research and development collaboration of the Fraunhofer IDMT with the University of Oldenburg focuses on applications in the fields of cognitive state detection (attention, vigilance, auditory attention) and health monitoring (sleep monitoring at home, detection of epileptic seizures).

While developing flex-printed electrode grids, we focus not only on excellent signal quality, but also on maximizing wearing comfort, even over long periods of wear. With sleep monitoring in mind, we designed the trEEGGrid to capture EEG, EOG and EMG with just one grid structure while maintaining a high level

of comfort. Based on suitable linear combinations of the different electrodes, signals from around the ear and the forehead can approximate conventional skull positions relevant for EEG data analysis.



At Fraunhofer IDMT we address the whole chain of challenges for mobile EEG applications: unobtrusive devices, artifact suppression, data interpretation and machine learning based analysis. Are you interested to learn more about mobile EEG application? Just get in touch with us.

### Expertise in mobile EEG

- Data acquisition
- Signal processing, pattern recognition, machine learning
- Set up of specific process chains based on pyMNT Framework

### Get in touch with us!

Dr.-Ing. Insa Wolf  
 Head of Mobile Neurotechnologies (MNT)  
 Fraunhofer IDMT-HSA  
 Marie-Curie-Straße 2  
 26129 Oldenburg

insa.wolf@idmt.fraunhofer.de  
 www.idmt.fraunhofer.de/hsa

### In cooperation with

