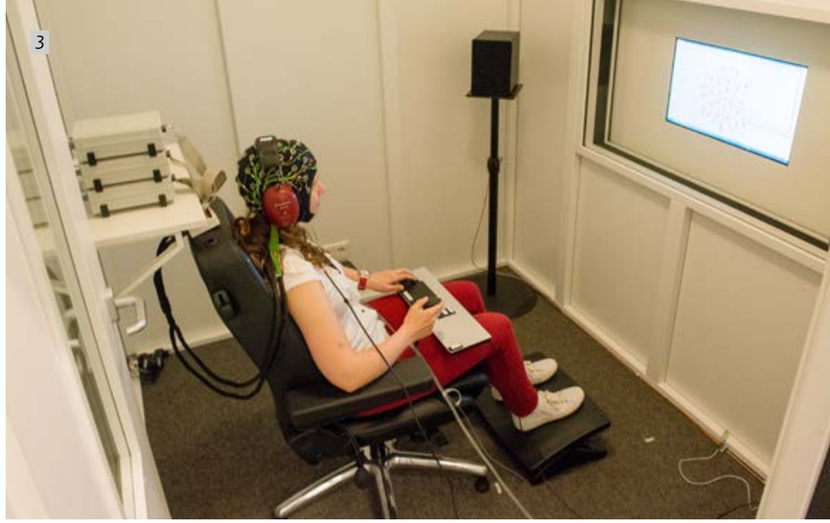
Measing brainwaves on the go

Stefan Debener is making EEG technology mobile

1 *The electroencephalogram (EEG) makes it possible to record brain activity in humans in a painless procedure. This enables us to gain a better understanding of how the brain controls cognition processes such as hearing and seeing. One disadvantage of the EEG is that uncomfortable caps are needed to attach the sensor electrodes to the head.*

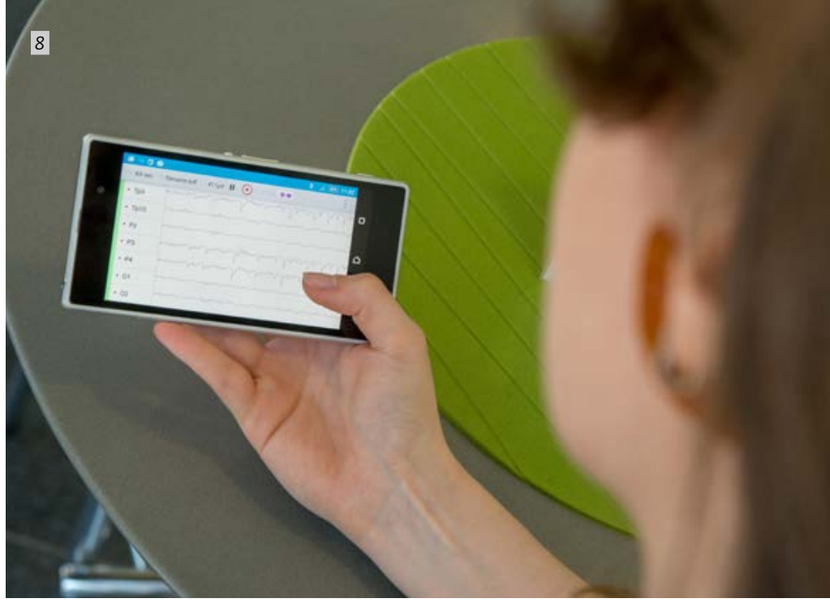
2 *In addition, a conductive gel must be applied, which means test subjects must wash their hair afterwards.*



3 *EEGs are traditionally carried out under controlled laboratory conditions. Test subjects should move as little as possible during the procedure.*

4 *Prof. Dr. Debener and his team are looking for new ways of conducting EEGs that are less disruptive for everyday life. He has invented so-called cEEGrids with sensors that can be placed around the ears so that hair washing after the procedure is no longer necessary.*

5 *Debener's team combines the new sensors with a miniature EEG amplifier. Signals are recorded wirelessly, meaning cables, computers and caps are no longer needed.*



6 *Attaching the cEEGrid sensors is a quick and easy procedure. Signals can be recorded for many hours at a time. The sensors are so comfortable to wear that, like a good pair of glasses, some test subjects simply forget they have them on.*

7 *The goal is to record EEG signals as unobtrusively as possible. Test subjects are barely aware of the cEEGrid in everyday situations.*

8 *Recording the signals is equally uncomplicated – requiring nothing more than a normal smartphone.*

9 *The mobile EEG technology is a prerequisite for thought-controlled, intelligent hearing devices – an ambitious goal of the Hearing4All Cluster of Excellence. The technology can also be applied in basic neurocognition research, neuro-rehabilitation, neurology and paediatrics.*