Functional Magnetic Resonance Imaging:
Basic principals and appliance in multimodal research

Functional magnetic resonance imaging, or fMRI, is a technique for measuring brain activity. It works by detecting the changes in blood oxygenation and flow that occur in response to neural activity – when a brain area is more active it consumes more oxygen and to meet this increased demand blood flow increases to the active area. fMRI can be used to produce activation maps showing which parts of the brain are involved in a particular mental process. Over the last decade it has provided new insight to the investigation of how memories are formed, language, pain, learning and emotion to name but a few areas of research. The talk will focus on the basic principals and the physiological correlates of fMRI. It will give a brief insight into what is actually recorded during MR scanning (compared to neuronal spiking activity and local field potentials). Furthermore, data from a recent fMRI will exemplify the use of functional magnetic imaging in multimodal research.