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## Magnetoencephalography (MEG) in epilepsy surgery

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Magnetoencephalography (MEG) is a state-of-the-art functional neuroimaging and neurophysiology technique, whose primary clinical application is in the diagnostic evaluation of patients with epilepsy. MEG's value in epilepsy and in functional neuroimaging in general, stems from its high spatiotemporal accuracy and resolution: MEG is the only currently available non-invasive technique to offer both, high spatial (of the order of few millimeters) and excellent temporal (sub-milliseconds) resolution. Numerous studies have shown the clinical usefulness and added value of MEG in epilepsy. In a prospective blinded study (considered class 1 evidence by American Academy of Neurology), MEG yielded non-redundant information in 33% of patients, where it suggested to cover additional areas in 13% of patients and modifications of the surgical decision in 20% of patients. This information would not have been available from other techniques, although patients underwent video/EEG, imaging, and PET and SPECT when indicated. In general, recent incorporation of MEG in the clinical practice has been a valuable advancement in the field. MEG's role in the pre-surgical evaluation of patients with epilepsy is threefold. First, it is used to localize the epileptic foci, estimating the epileptogenic zone. Second, MEG is used to determine the language-dominant hemisphere. Third, it is used to map the eloquent cortex of language, motor and sensory (visual, auditory and somatosensory) functions.

## Biography

Vahe Poghosyan received his MSc in Mathematics (1997) from Yerevan State University and PhD in Neurophysiology (2000) from National Academy of Sciences of Armenia. He held positions of Research Scientist in RIKEN Brain Science Institute in Japan (2000-2007), and Senior Scientist (2007-2016) and Director of Research Training Program (2011-2016) at AAI Scientific Cultural Services Ltd. in Cyprus. Currently, he is the Head of MEG Laboratory and Consultant of Neuronavigation at King Fahad Medical City in Riyadh, KSA. He has published more than 20 research papers in the high-impact journals in the field of Neuroscience.

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