

The analysis of electromagnetic fields recorded from the brain (MEG) has never taken into account the influence of the magnetic fields recorded on electrical activity that is recorded simultaneously (EEG). This concept has been regularly shuffled under the rug of MEG conferences and I think it is now time to allow the idea to emerge because it could contribute to an understanding of the structure and function of dynamic and distributed systems in the brain that are related to complex function of the brain. A 'unified theory' might, for example, lead to an understanding of memory and consciousness.

**The question is this:**

The "Unified Field", as has been described in physics, can be viewed as the combination of an [electric field](#) and a [magnetic field](#). The electric field is produced by stationary charges, and the magnetic field by moving charges (currents); these two are often described as the sources of electrical and magnetic fields of the brain. The current approach in Magnetoencephalography is to use magnetic fields as a method for detecting the electrical fields that have produced the magnetic fields - primarily the distribution of the electrical fields.

The way in which charges and currents interact with the electromagnetic field is described by [Maxwell's equations](#) and the [Lorentz force law](#). Therefore the function of a 'system' in the brain could be in interaction of electrical and magnetic properties of systems in the brain and the nature of that interaction could be influenced by distance, the strength of the fields and the nature of continuous moderation of that interaction, that results from immediate input and output of "the system", i.e., what is observed in MEG and EEG.