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**Thema: Neuronal Synchronization – Separating Facts from Fiction**

There has been no doubt that different brain regions do communicate, a fact which is often generally termed as synchronization or synchrony, neither there are many arguments against the claim that the strength of such communication (or interdependency) is dynamic in nature. But the problem of assessing the strength of the communication between two distant brain regions is not a trivial task. In addition, the possible nonlinear properties of the brain pose further constraints to this problem. After the twin emergences of high performance computing and nonlinear dynamical system theory, there have been flurries of theoretical interest which were later then applied to investigate the strength, weak or strong, and nature, linear or nonlinear, of interdependencies between multiple brain regions. But at the same time, there is very little effort in presenting the available techniques in a common framework; as a result, confusing and contradictory results appeared out of less careful applications of the theories. Thus, it will be very useful and informative to the end users, as well as to the system neuroscientists, if the available theoretical methods are presented in one complete framework without any bias towards any particular method. We would like to discuss, exactly, this approach while concentrating on the problem of detecting synchronization in EEG/MEG signals, which seems to be of major importance to the field of memory research.