

Poster presentation

Open Access

Enhanced measured synchronization of unsynchronized sources: significance for brain recordings

Luis Garcia Dominguez, Richard Wennberg, Jose Luis Perez Velazquez and Ramon Guevara*

Address: Hospital for Sick Children, University of Toronto, Toronto, Canada

Email: Ramon Guevara* - guevara.erra@gmail.com

* Corresponding author

from Sixteenth Annual Computational Neuroscience Meeting: CNS*2007
Toronto, Canada. 7–12 July 2007

Published: 6 July 2007

BMC Neuroscience 2007, 8(Suppl 2):P41 doi:10.1186/1471-2202-8-S2-P41

© 2007 Dominguez et al; licensee BioMed Central Ltd.

The analysis of synchronization, particularly phase locking, is being increasingly used in neuroscience to explore coordinated brain activity. The application of this methodology to magnetoencephalographic (MEG) and electroencephalographic (EEG) recordings would seem promising because these two recording techniques have great temporal resolution. However, current methods of synchronization analysis applied to raw MEG/EEG data may not be as physiologically sound as previously thought. In this work we present a model of brain activity based on random current dipoles that reproduces the main characteristics observed in measurements of real data synchronization, even when no synchronized activity is taking place among the sources. In particular, we show that the enhanced local synchronization, previously described in some studies of epileptic seizures, may result from the activity of only a few unsynchronized sources.