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NeuroMath
Advanced Methods for the Estimation of
Human Brain Activity and Connectivity

FOREWORD

Special issues of the International Journal of Bioelectromagnetism (IJBEM) Vol. 11 No. 3 and No.4 are companion issues devoted to the advanced methods for measuring functional brain dynamics. They contain selected papers presented at the 7th International Symposium on Noninvasive Functional Source Imaging of the Brain and Heart and 7th International Conference on Bioelectromagnetism held in Rome, Italy from May 29– 31, 2009.

Seventeen papers were accepted for publication after a peer review process. This collection of papers covers wide range of topics in bioelectromagnetism and its application to the study of human brain. Scalp and intracranial electroencephalography (EEG) and magnetoencephalography (MEG) were used to record brain activity during different perceptual and cognitive tasks in healthy subjects and patients. Several papers describe various methods for studying functional connectivity of brain regions and their synchronization. The novel signal processing techniques were applied to very diverse problems from exploring different phases of the yogic breathing exercise, investigation of the effect of gum chewing on working memory acquisition to clinical research related to epilepsy, dyslexia and Alzheimer's disease.

Papers with emphasis on presenting new experimental findings and evidence are chosen to form the special issue No. 3 on dynamic brain functional analysis, while papers with emphasis on presenting noble analytical methodology are selected for the special issue No. 4 on advanced methods for functional brain dynamics analysis.

We hope that the contributions included in this special IJBEM issue will be interesting to researchers from different areas of bioelectromagnetism.

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