



BOSTON UNIVERSITY STATISTICS
AND PROBABILITY SEMINAR SERIES

Spectral Analysis of Brain Signals

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Thursday, May 1, 2008, 4-5pm

Mathematics and Computer Science (MCS) Building, Room 149
111 Cummington Street, Boston

Tea and Cookies at 3:30pm in MCS 153

Abstract: In many neuroscience experiments, one of the key goals is to investigate the oscillatory behavior of brain signals as quantified by spectral analysis. First, we review some basic ideas of Fourier analysis of stationary time series and highlight its connection to analysis of variance. Second, we discuss current models and methods for analyzing non-stationary processes (i.e., processes whose spectral decomposition change over time). Stochastic representations using localized basis functions will be discussed. The talk will conclude with some current investigations including spatio-temporal-spectral analysis and classification of biological signals. These methods will be illustrated using electroencephalogram (EEGs) and magnetoencephalogram (MEGs).