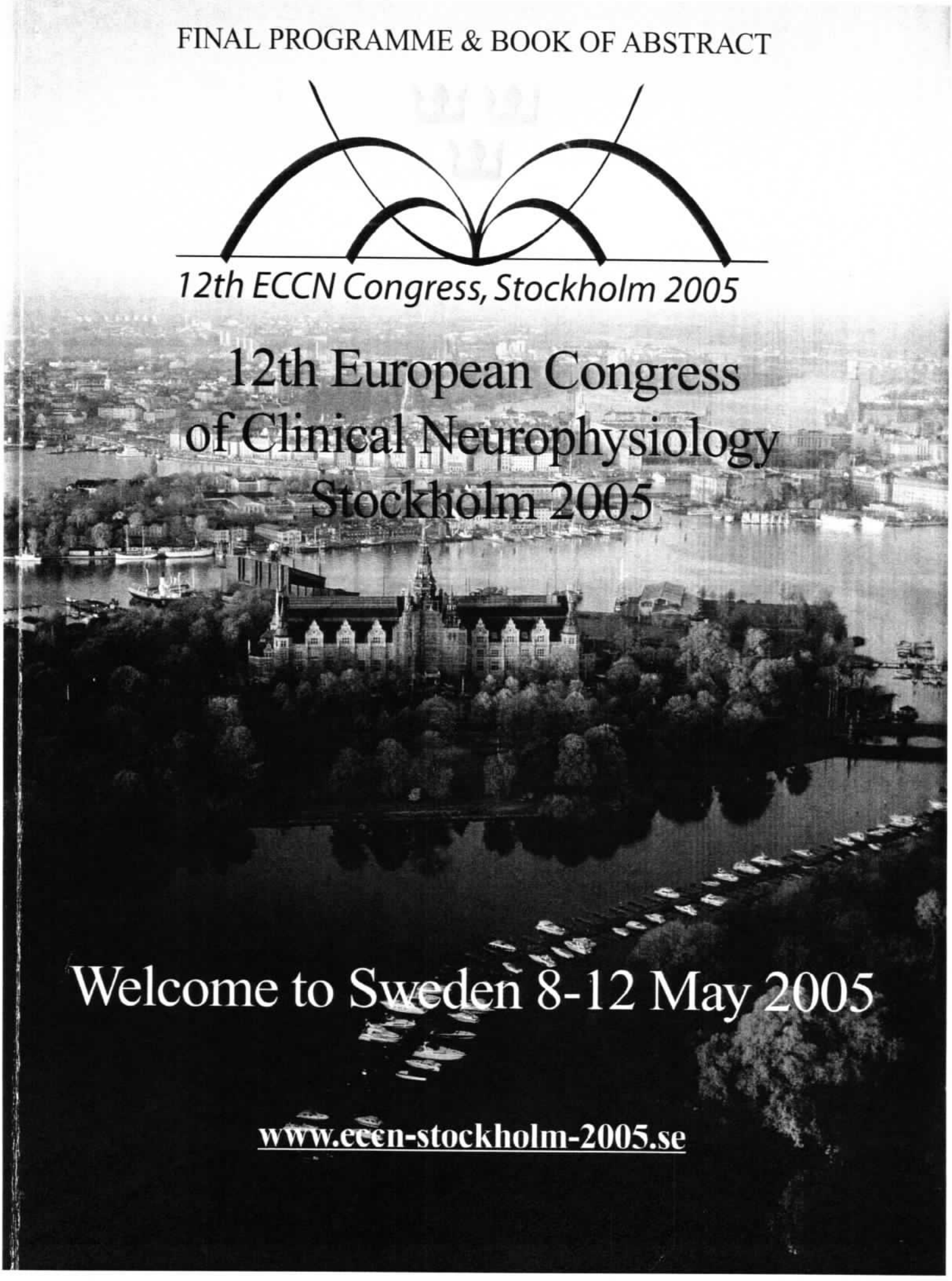
FINAL PROGRAMME & BOOK OF ABSTRACT

12th ECCN Congress, Stockholm 2005

# 12th European Congress of Clinical Neurophysiology Stockholm 2005



## Welcome to Sweden 8-12 May 2005

www.eccn-stockholm-2005.se

**WeP4:06** **EEG Coherence Mapping of Cuff-Pressure Pain in Humans**
Andrew CN Chen, Aalborg, Line Egsgaard, Li Wang,
Lars Arendt-Nielsen, Aalborg , Denmark

**WeP4:07** **The effect of reference choices on brain evoked potentials: the use of infinite reference**
Andrew CN Chen, Aalborg, Denmark, Dezhong Yao, Chengdu, China, Li Wang,
Lars Arendt-Nelsen, Andrew CN Chen, Aalborg , Denmark

**WeP4:08** **EEG abnormalities with and without relation to severe hypoglycemia in adolescents with Type 1 diabetes**
Lars Hyllienmark, Jose Maltez, Stockholm, Anna-Karin Dandenell,
Johnny Ludvigsson, Linkoping, Tom Brismar, Stockholm, Sweden

**WeP4:09** **Analyzing single channel EEG recordings to extract EOG artifacts**
António Martins da Silva, Porto, Ana Rita Teixeira, Ana Maria Tomé, Aveiro, Portugal,
Peter Gruber, Elmar Lang, Regensburg, Germany

**WeP4:10** **Amplitude and phase relationship between alpha and beta oscillations in human EEG**
Tom Brismar, Håkan Carlqvist, Vadim Nikulin, Jan-Olof Strömberg, Stockholm, Sweden

**WeP4:11** **Time course and variability of power in different frequency bands of EEG during resting conditions**
José Maltez, Lars Hyllienmark, Vadim Nikulin, Tom Brismar, Stockholm, Sweden

**WeP4:12** **Fronto-parietal coupling of brain rhythms in mild Alzheimer's disease compared to vascular and mild cognitive impairment subjects. A multicentric EEG study**
Florinda Ferreri, Rome, Davide Moretti, Fabrizio Vecchio, Roma, Raffaele Ferri, Troina,
Claudio Babiloni, Roma, Francesco Rundo, Troina, Giuliano Binetti, Giovanni Frisoni, Brescia,
Paolo Maria Rossini, Roma, Andrea Cassariono, Roma, Gloria Dal Forno, Rome,
Lanuzza Bartolo, Roma, Claudio Bonato, Brescia, Flavio Nobili, Guido Rodriguez, Genova,
Serenella Salinari, Roma, Stefano Passero, Raffaele Rocchi, Siena, Italy, CJ Stam, Amsterdam,
Netherlands

## 13:00-14:00 EMG methodology

**WeP5:01** **Neuromuscular status of thyroid diseases**
Göksel Somay, Istanbul, Turkey, Buket Oflazoglu, Önder Us,
Atalay Surardamar, Tolga Yakar

**WeP5:02** **Surface EMG used for quantitative analysis of the nerve and muscle parts of the motor unit potential**
Jan-Erik Malmstrom, Gothenburg, Lars Lindstrom, Gothenburg, Sweden

**WeP5:03** **Electrophysiologic identification and evaluation of stylohyoid and posterior digastricus muscle complex**
Tulay Kurt, Nevin Gurgor, Yaprak Secil, Nebil Yildiz, Cumhur Ertekin, Izmir, Turkey

**WeP5:04** **Evaluation of Neuromuscular Transmission by Using Monopolar Needle Electrode**
Kemal Tutkavul, Istanbul, Mehmet Baris Baslo, Istanbul, Mustafa Ertas,
Hülya Tireli, Istanbul, Turkey

**WeP5:05** **Central and peripheral motor conduction to cremasteric muscle**
Cumhur Ertekin, Fikret Bademkiran , Ibrahim Aydogdu, Burhanettin Uludag,
Nebil Yildiz, Kaan Ozdedeli, Baris Altay, Izmir, Turkey

**WeP5:06** **Evaluation of digastric muscle (posterior belly) by electromyography in peripheral facial palsy.**
Alexandre Recchia, Jose Luis Alonso Nieto, Sao Paulo, Sergio Tufik, São Paolo, Brazil

**WeP5:07** **Motor unite number estimation in facial palsy**
Vildan Yayla, A. Emre Oge, Istanbul, Turkey

**WeP5:08** **Utility of laryngeal EMG.**
Marja Koivu , Turku, Finland, Staffan Morén, Uppsala, Sweden, Eeva Sala,
Björn Falck, Turku, Finland

**WeP5:09** **Comparison of Three Different Methods in Diagnosing UNE Regarding Diagnostic Sensitivity.**
Oguzhan Onultan, Tulin Tanridag, Buket Oflazoglu, Onder Us, Istanbul, Turkey

**WeP5:10** **Development of EMG laboratory in Arkhangelsk, Russia**
Maria Nebuchennykh, Arkhangelsk, Russian Federation,
Torberg Torbergsen, Tromsö, Norway, Erik Stålberg, Uppsala, Sweden

## WeP4:09

## Analyzing single channel EEG recordings to extract EOG artifacts

António Martins da Silva, University of Porto, Porto, Portugal
Ana Rita Teixeira, Ana Maria Tomé, Peter Gruber, Elmar Lang
The ocular activity masking Electroencephalogram (EEG) signals is common on frontal derivations. To avoid such disturbances and to remove ocular artifacts (EOG) from EEG we apply a method based on singular spectrum analysis. After embedding the EEG signal in a feature space of time-delayed coordinates with dimension M, data were clustered (into q groups) and the principal components (PCs) of each cluster were computed. We assume that the EOG artifact is associated with the PCs associated to the largest eigenvalues. A Minimum Description Length (MDL) criterion was incorporated to estimate the number of eigenvalues corresponding to the EOG artifact. The extracted EOG signal is subtracted from the original EEG signal to obtain the corrected signal we are interested in. A segment of a frontal (FP1-Cz) EEG signal containing high-amplitude EOG artifacts was considered. The signal was embedded using M=40 and clustered with a variable number of clusters. The results were compared visually in the time domain, but power spectral densities computed by the Welch method were also considered. Instantaneous measures of energy in some of those bands (theta, alpha and beta) were also compared, just to evaluate the differences between the corrected EEG and original EEG. The best approach was accomplished on EEG recordings, where ocular artifacts show large amplitudes, in which case a small number of principal directions suffice to span the subspace of the EOG "noise" signal. The method uses only the EEG channel, while regression analysis needs also the EOG derivations.

## WeP4:10

## Amplitude and phase relationship between alpha and beta oscillations in human EEG

Tom Brismar, Karolinska Institutet, Stockholm, Sweden
Håkan Carlqvist, Vadim Nikulin, Jan-Olof Strömberg
The relationship between alpha and beta oscillations in the resting condition was systematically explored in the present study. EEG was recorded in 33 subjects and alpha (7.5-12.5 Hz) and beta (15-25 Hz) oscillations were extracted with the use of a modified wavelet transform. Power, peak frequency and phase synchronization were evaluated for both types of oscillations. The average ratio beta/alpha peak frequency was about 1.9-2.0 for all electrode derivations. The peak frequency of beta activity was in 70-90 % within the 95 % confidence interval of 2 times the alpha frequency. A significant ($P<0.05$) linear regression was found between beta and alpha power (log) in all derivations in all subjects (except one) with slopes of the regression line being ca. 0.3. There was no significant difference in the slope of the line in different electrode locations although the amplitude correlation was strongest in the occipital locations where alpha and beta oscillations had the largest power. A significant 1:2 phase synchronization was present between alpha and beta oscillations with a phase lag of about $\pi/2$ for all electrode derivations. The strong frequency relationship between the resting beta and alpha oscillations suggests that they are generated by a common mechanism. Power and phase relationships were weaker suggesting that these properties can be modulated by additional mechanisms as well as be influenced by noise. A careful distinction between alpha-dependent and alpha-independent beta activity should be considered in order to make statements about the possible significance of genuine beta activity in different neurophysiological mechanisms.