OCCIPITAL HARMONIC OSCILLATORS DURING INTERMITTENT PHOTIC STIMULATIONS IN NEUROPSYCHOLOGICAL IMPAIRMENT OF ERDELY SUBJECTS

C.T. Moret-Chalmin, X. Roubinet
ICE-Neuro, Chaville, France

INTRODUCTION: We study harmonic and sub-harmonic driving responses to Intermittent Photic Stimulations (IPS).
TECHNIQUE: For our seven case reports ,we use a numerical EEG recording with 10-20 international montage, and IPS from 1 to 50Hz showing frequency particularities of harmonics at 3Hz, 5Hz, 8Hz, 10Hz, 15Hz, 25 Hz and 35Hz, eyes either open or closed, on the visual primary cortex, by Frequency Graticules, illustrating spectrum of periodical signals in applied physics.
DISCUSSION: The neuronal connections in the occipital fields show resonance of frequencies, linked to a simple rule of pair or impair multiplication and fraction, seen not only in the alpha range, enhanced by the same time-locked input, but also from 3 to 35Hz flickers. The responses occur in a mirrored way, limited to 70Hz responses, because of our technical inability to record them in the higher gamma ranges and because of amplitude reductions.
CONCLUSION: Simultaneous excitability triggered by IPS, synchronizes multiple frequencies responses so called harmonics replications, reproducible, in our patients complaining of cognitive impairment. The mechanism of resonance helps to impact more neuronal networks of different prevalent sensitivity by a simple predictive rule spreading contamination of spatial and increased temporal driving. It explains one of the cognitive compensatory effects of cognitive training with slow rate photic stimuli already tested in rehabilitation, aside Brain Computer Interface (BCI) use.