

AUDIO-VISUAL ENTRAINMENT INFLUENCE ON POSTURAL DYNAMICS



Zlatogor Minchev & Plamen Gatev



E-mails: zlatogor@bas.bg, pgatev@yahoo.com



Thessaloniki, Greece



Int. Workshop on Posture, Balance & the Brain

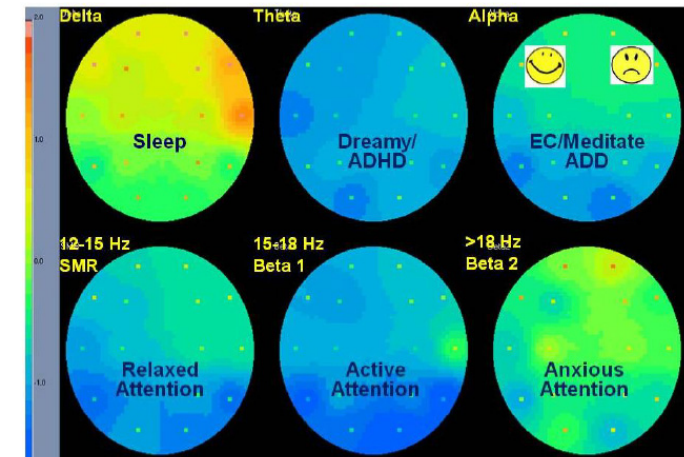
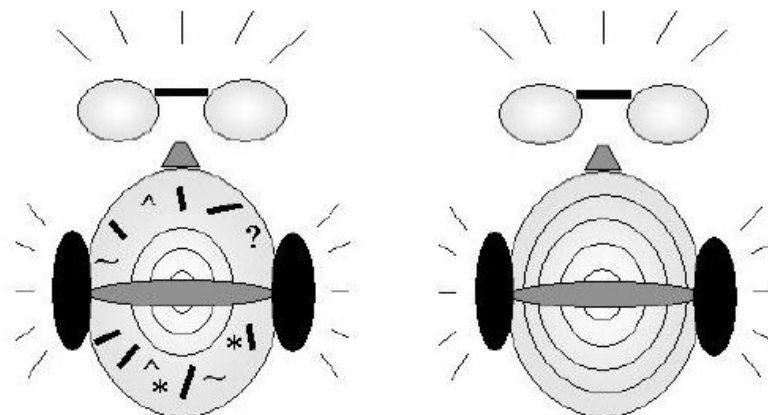
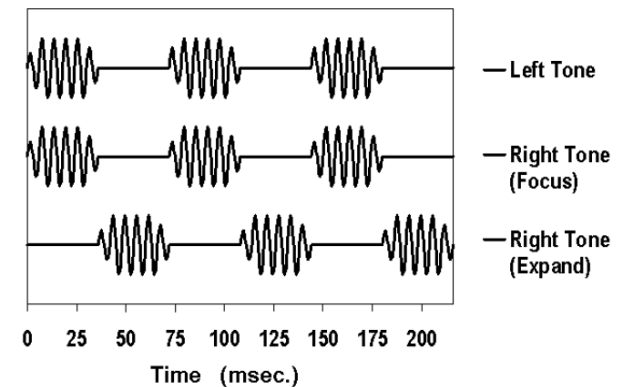
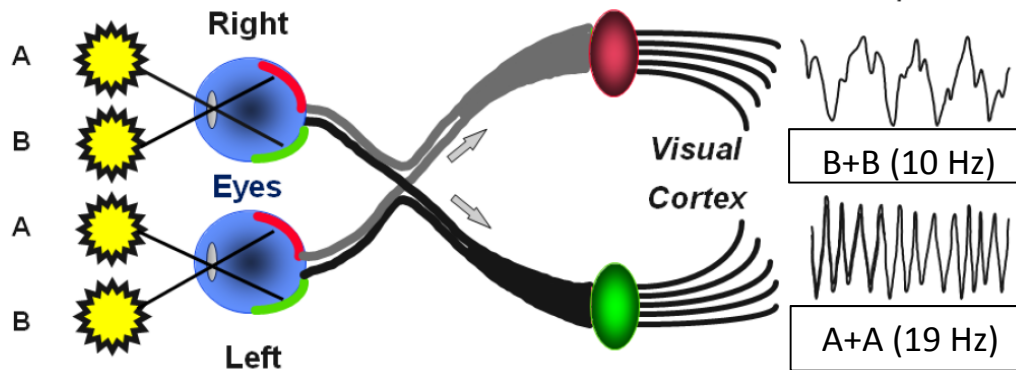
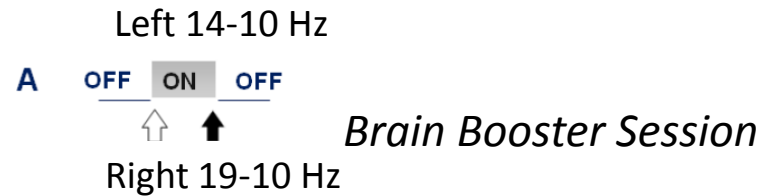


13.09. 2014

OUTLINE

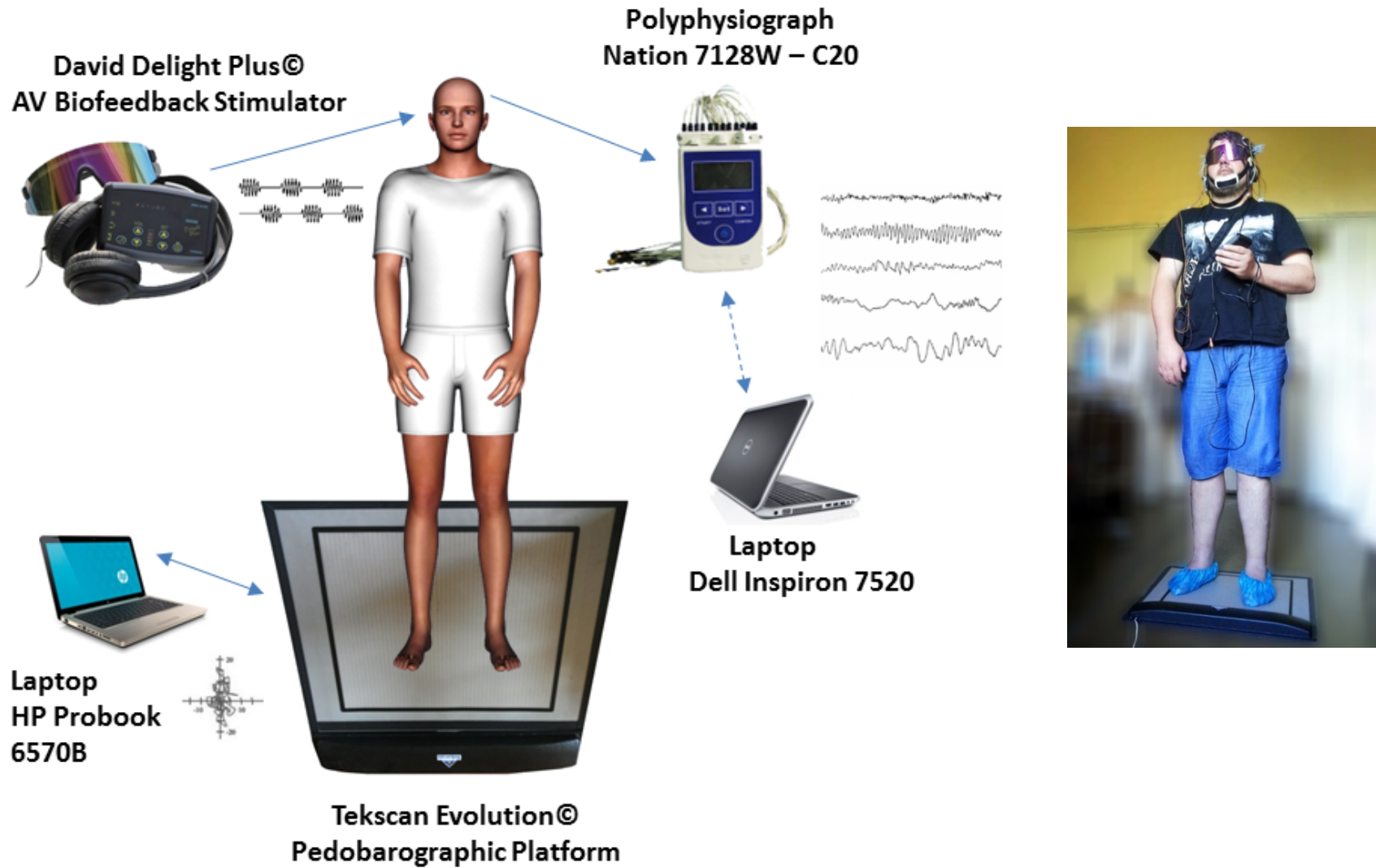
- ☐ AUDIO-VISUAL ENTRAINMENT IDEA
- ☐ EXPERIMENTAL FRAMEWORK
- ☐ RESULTS
- ☐ DISCUSSION

AV ENTRAINMENT IDEA



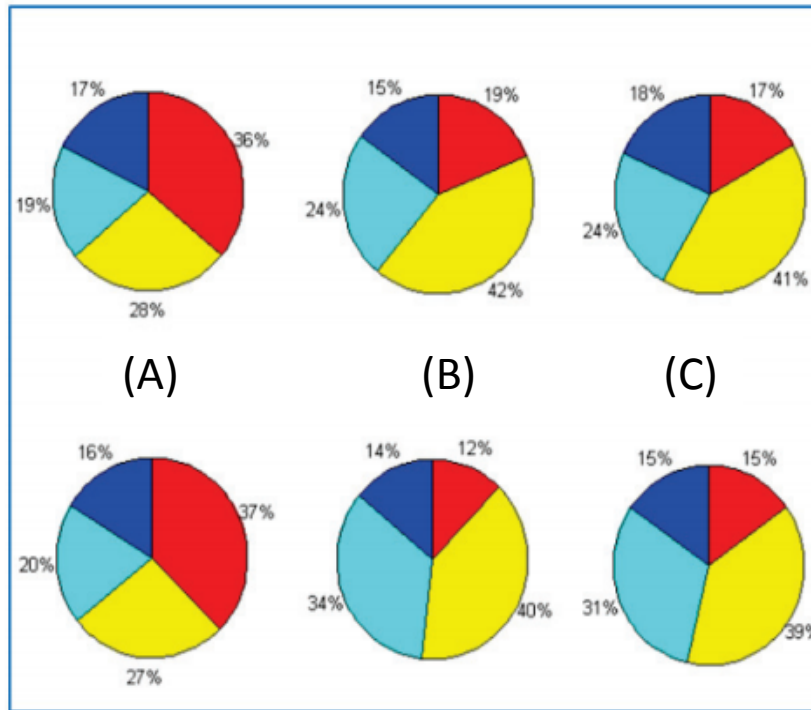
Sterman-Kaiser Imaging Lab Data Base

EXPERIMENTAL FRAMEWORK

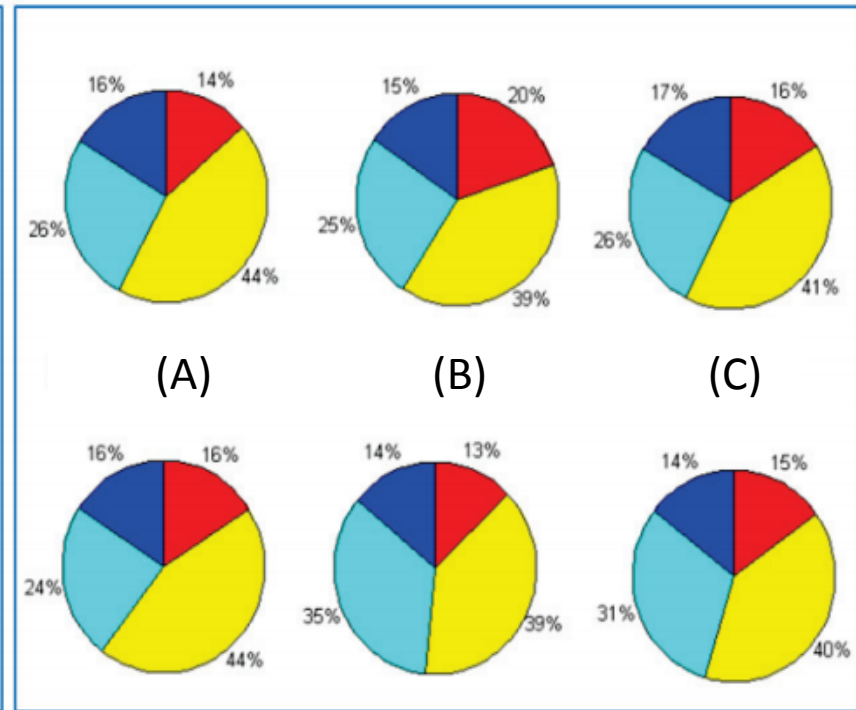


EEG RESULTS

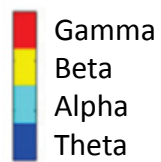
C3 EYES OPENED



C4 EYES OPENED



C3 EYES CLOSED

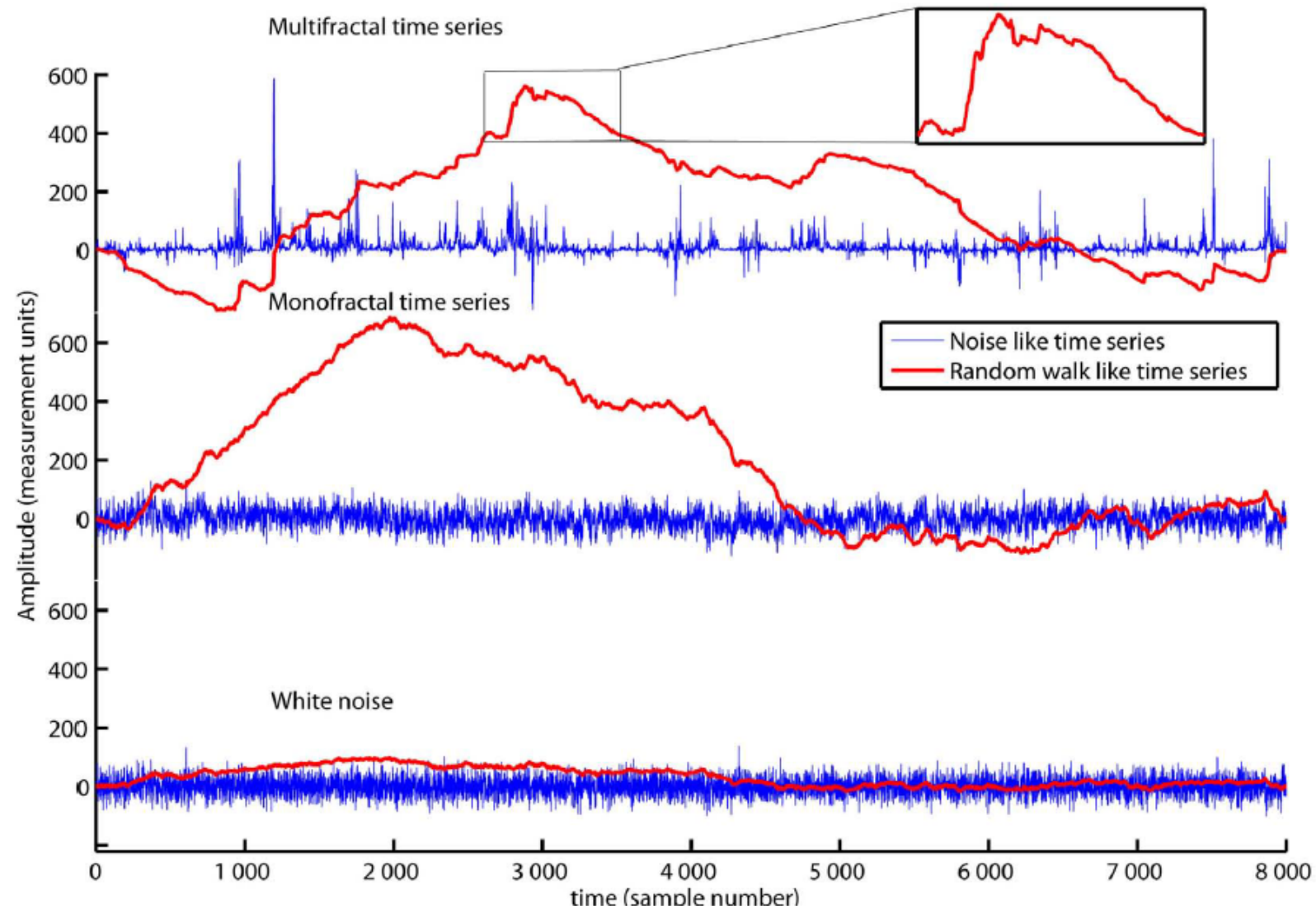


(A) - Before AV Stimulation
(B) - 10 min after AV Stimulation
(C) - 30 min after AV Stimulation

C4 EYES CLOSED

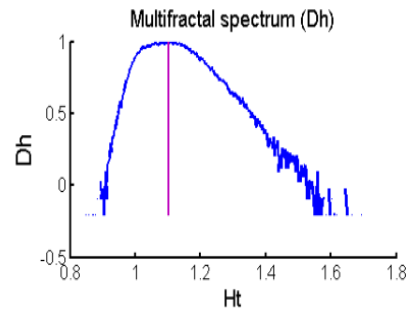
RELATIVE FOURIER PS
MINA, 2009

BUT CAN WE GO DEEPER?

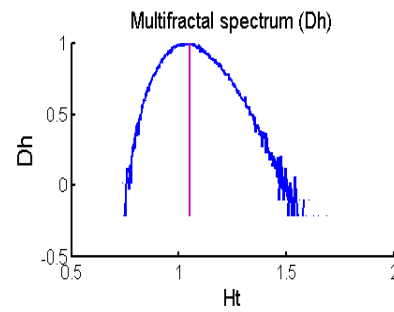


EYES OPENED

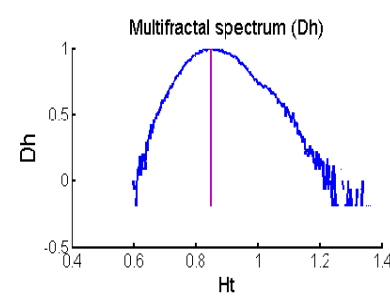
C3 Before Stimuli



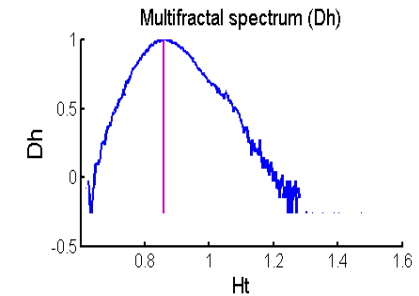
C4 Before Stimuli



C3 10 min after AV Stimulation



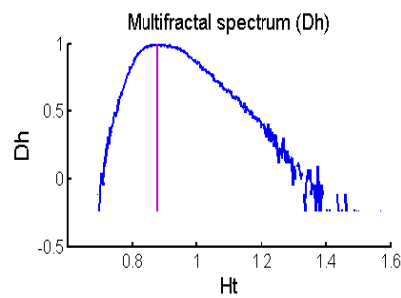
C4 10 min after AV Stimulation



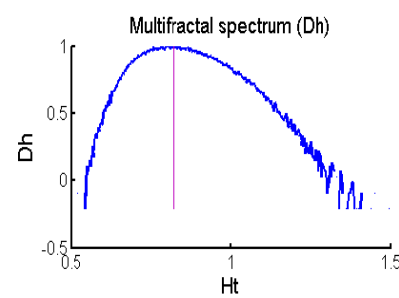
Ht = 0.7 - 1.5 -> Ht = 0.5 - 1.3

EYES CLOSED

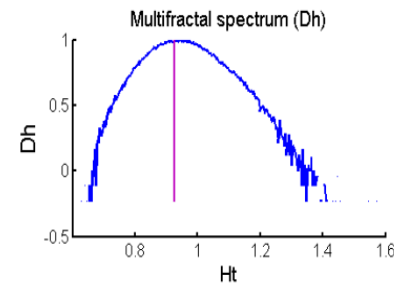
C3 Before Stimuli



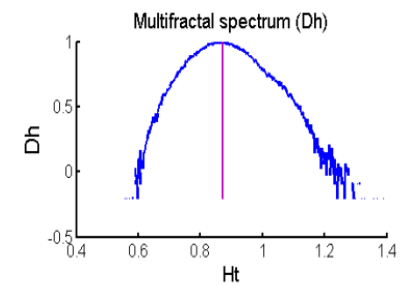
C4 Before Stimuli



C3 10 min after AV Stimulation



C4 10 min after AV Stimulation

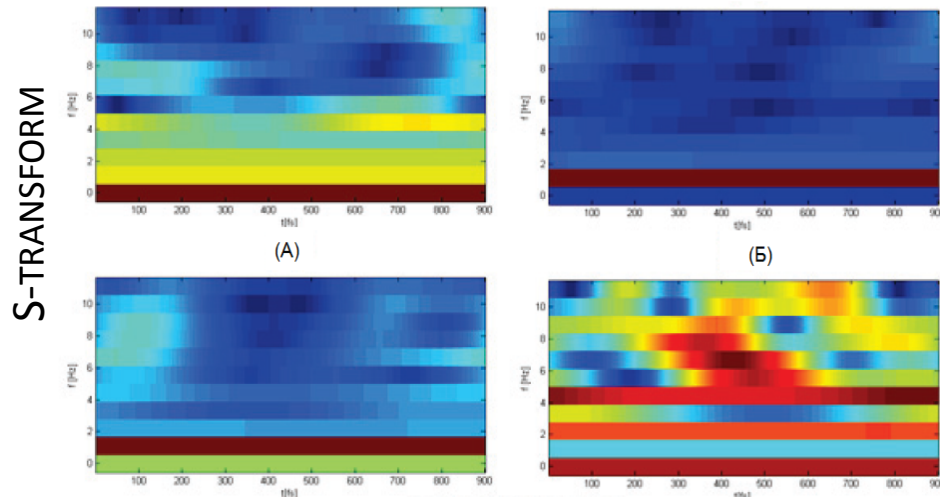


Ht = 0.5 - 1.5 -> Ht = 0.6 - 1.3

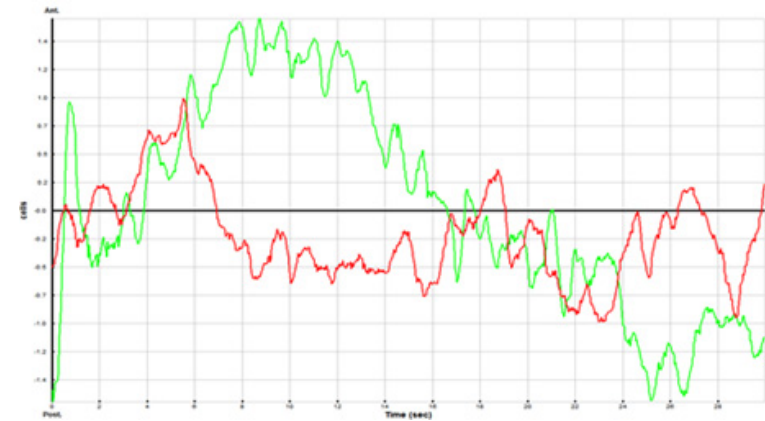
MULTIFRACTAL SPECTRUM

STABILOGRAM A/P RESULTS

(A) EYES OPENED (B)

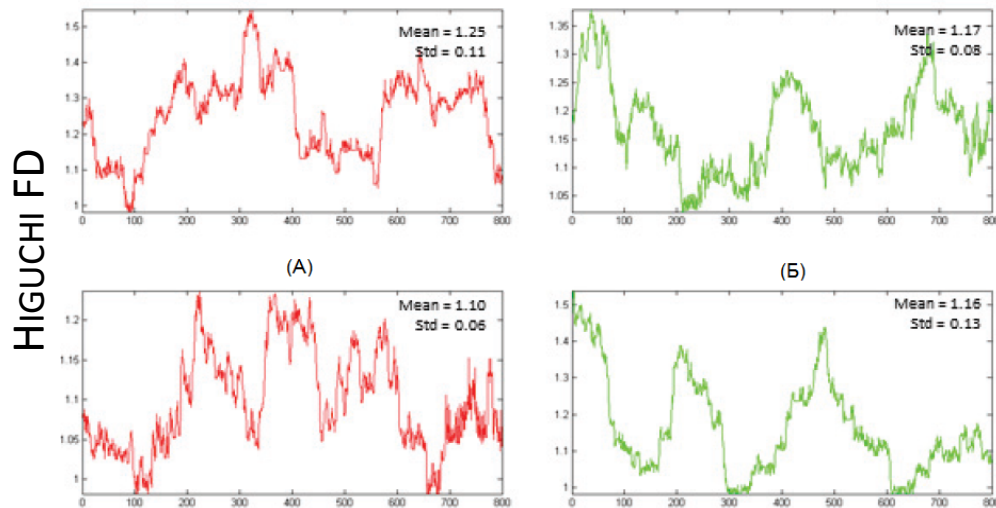


A/P COP DYNAMICS EYES OPENED

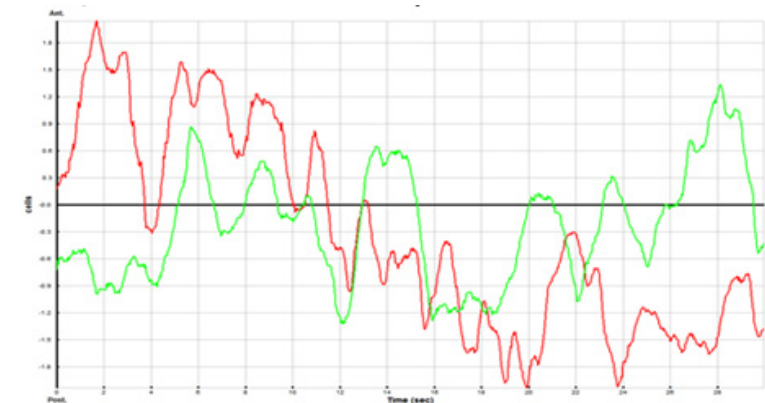


(A) EYES CLOSED (B)

(A) EYES OPENED (B)



A/P COP DYNAMICS EYES CLOSED

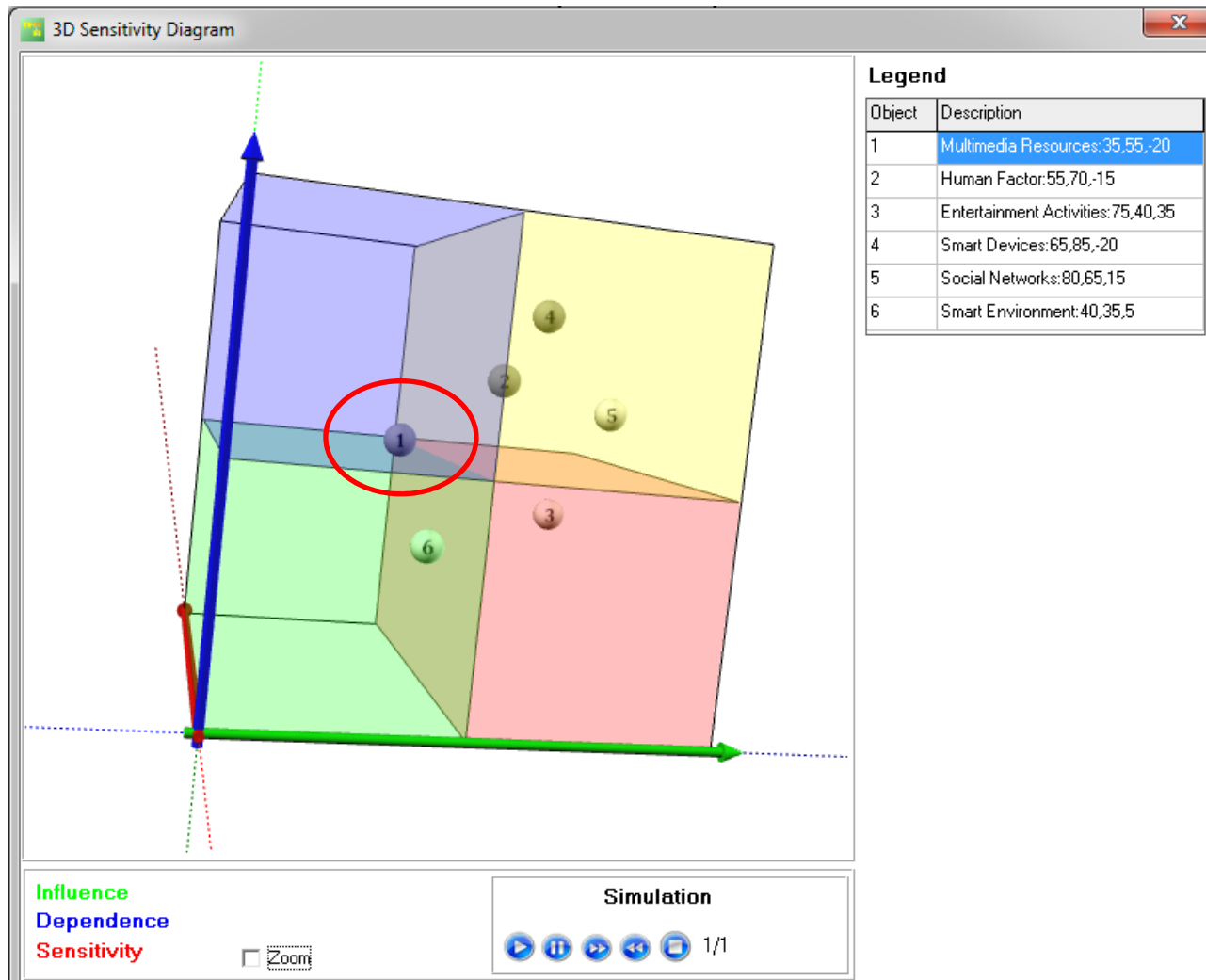


(A) - Before AV Stimulation
(B) - 10 min after AV Stimulation

(A) EYES CLOSED (B) DOYLE ET AL, 2004

Minchev & Gatev, 2014

RESULTS APPLICATION



syssec



Minchev et al, 2014

DISCUSSION

THE PRESENTED EXPERIMENTAL FRAMEWORK FOR AUDIO-VISUAL ENTRAINMENT HAS SHOWN VISIBLE EFFECT TO BOTH BRAIN AND POSTURAL DYNAMICS. BY IMPLEMENTING BOTH LINEAR AND NON-LINEAR SIGNALS ANALYSIS TECHNIQUES THESE EFFECTS COULD BE NOTICED AND EXPLORED IN DETAILS.

THE IMPLEMENTED METHODOLOGY IS USEFUL FOR REHABILITATION PURPOSES AND MULTIMEDIA INFLUENCE EXPLORATION TO MODERN DIGITAL WORLD.

ACKNOWLEDGEMENTS

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TK 02/60, NSF, WWW.CLEVERSTANCE.COM

SPECIAL THANKS FOR THE TECHNOLOGICAL SUPPORT TO: [JOINT TRAINING
SIMULATION & ANALYSIS CENTER](#), BULGARIAN ACADEMY OF SCIENCES AND:

 A STUDY ON IT THREATS AND USERS BEHAVIOUR DYNAMICS IN ONLINE
SOCIAL NETWORKS, DMU03/22, NSF, WWW.SNFACTOR.COM

 A FEASIBILITY STUDY ON CYBER THREATS IDENTIFICATION AND THEIR
RELATIONSHIP WITH USERS' BEHAVIOURAL DYNAMICS IN FUTURE SMART HOMES,
WWW.SMARTHOMESBG.COM

 KIND APPRECIATIONS FOR THE APPLICATIONS CONTEXT AND TO: EU
NETWORK OF EXCELLENCE IN MANAGING THREATS & VULNERABILITIES FOR THE
FUTURE INTERNET – SYSSEC, WWW.SYSSEC-PROJECT.EU

THANK YOU FOR THE ATTENTION!

