Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Physics of the Brain. Treatment of Neurological Diseases via the Excitation-Suppression of the Brain Waves, Using the Multi-photon Pulsed-operated Fiber Lasers in the Ultraviolet Range of Frequencies with Modulated Repetition Frequency[1] V. ALEXANDER STEFAN, Stefan University (The Institute for Advanced Physics Studies) — The novel study of the brain waves (BW)[2] in connection to neurological diseases is proposed. It is based on the pulsed-operated (amplitude modulation) multi-photon (frequency modulation) fiber-laser interaction with the brain neuro-topion (the neurological disease area)[3]. The modulated repetition frequency, Ω, (5-100 pulses per second) enables a fine-tuning with the brain waves, $\Omega_{\rm BW}$. The tunable fiber laser frequencies are in the ultraviolet frequency range, thus enabling monitoring of the electrical charge dynamics in the neuro-topion of a particular neuro-disease within the 10s of milliseconds.

[1]Supported by,The American Society for Genomic Medicine (Stefan University).
[2]Tae Kim et. al. Cortically projecting basal forebrain parvalbumin neurons regulate cortical gamma band oscillations, Proceedings of the National Academy of Sciences, vol. 112 no. 11, 3535–3540, (2015).
[3]Stefan, APS-March 2020, # M71.00361;Stefan et al.,Bull. APS 32, No.9,1713, (1987): APS-March-2015,#P1.00099; APS-March-2016, #M1.00310; APS-March-2017,# M1.00291; V. Alexander Stefan, Neurophysics*, Stem Cell Physics, and Genomic Physics: Beat-Wave-Driven-Free Electron Laser Beam Interactions with the Living Matter*, (S-U-Press, La Jolla, CA, 2012); V.Stefan, B.I.Cohen, C.Joshi, *Science*, 243, 4890, (1989)

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Date submitted: 09 Jan 2020 Electronic form version 1.4