Abstract Submitted
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Laser-Bioplasma Interaction: Excitation and Suppression of the Brain Waves by the Multi-photon Pulsed-operated Fiber Lasers in the Ultraviolet Range of Frequencies[1] V. ALEXANDER STEFAN, Institute for Advanced Physics Studies, Stefan University, IAPS-TEAM TEAM — The novel study of the laser excitation-suppression of the brain waves[2] is proposed. It is based on the pulsed-operated multi-photon fiber-laser interaction with the brain parvalbumin (PV) neurons.[3] The repetition frequency matches the low frequency brain waves (5-100 Hz); enabling the resonance-scanning of the wide range of the PV neurons (the generators of the brain wave activity). The tunable fiber laser frequencies are in the ultraviolet frequency range, thus enabling the monitoring of the PV neuron-DNA, within the 10s of milliseconds. In medicine, the method can be used as an "instantaneous-on-off anesthetic."

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[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-2017, Abstract: 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); Stefan, APS-PPD, 2016, Abstract: JP10.00166; V. Stefan, B. I. Cohen, C. Joshi, *Science*, 243, 4890, (1989).

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