

Abstract Submitted
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Nonlinear Interaction of the Beat-Photon Beams with the Brain Neurocenters: Laser Neurophysics V. ALEXANDER STEFAN, Institute for Advanced Physics Studies, Stefan University, La Jolla, CA. — I propose a novel mechanism for laser-brain interaction: Nonlinear interaction of ultrashort pulses of beat-photon, $(\omega_1 - \omega_2)$, or double-photon, $(\omega_1 + \omega_2)$,¹ beams with the corrupted brain neurocenters, causing a particular neurological disease. The open-skull cerebral tissue can be irradiated with the beat-photon pulses in the range of several 100s fs, with the laser irradiances in the range of a few mW/cm², repetition rate of a few 100s Hz, and in the frequency range of 700-1300nm generated in the beat-wave driven free electron laser.² This method may prove to be an effective mechanism in the treatment of neurological diseases: Parkinson's, Lou Gehrig's, and others.

¹Maria Goeppert-Mayer, **Über Elementarakte mit zwei Quantensprüngen**, *Ann Phys* **9**, 273, 95. (1931).

²V. Alexander Stefan, **The Interaction of Photon Beams with the DNA Molecules: Genomic Medical Physics**. American Physical Society, 2009 **APS March Meeting**, March 16-20, 2009, abstract #K1.276; V. Stefan, B. I. Cohen, and C. Joshi, **Nonlinear Mixing of Electromagnetic Waves in Plasmas** *Science* 27 January 1989:Vol. 243. no. 4890, pp. 494 – 500 (January 1989).

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