

Abstract Submitted  
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**The Interaction of Photon Beams with the DNA Molecules: Genomic Medical Physics** V. ALEXANDER STEFAN, Institute for Advanced Physics Studies (Stefan University), 1010 Pearl Street, La Jolla, CA 92038-2946 — I propose a novel method for the modification of the corrupted human DNA<sup>1</sup> code that causes particular genetic disease. The method is based on the nonlinear interaction between the DNA molecule and the “modulation photons” generated in beat wave driven free electron laser, BW-FEL.<sup>2</sup> The BW-FEL frequency is given by  $\nu \sim \gamma^2 n \Omega_e$  ( $\gamma$  is the free electron beam relativistic factor,  $n$  is the harmonic number of the electron Bernstein plasma mode, and  $\Omega_e$  is the electron cyclotron frequency). The meV “carrier photons” are focused on the area of the brain, the source-center of a genetic disease. For the BW-FEL parameters: the free electron beam guiding d.c. magnetic field  $\sim 1\text{kG}$ ,  $\gamma \sim 10^3$ , and  $n=10$ , the keV “modulation photons” are generated, which are easily focused on the nucleotides. By modulating the frequency of the BW-FEL, the parametric resonance with the different DNA (sub-DNA) eigen molecular oscillation-modes are achieved, leading to the “knock-on” of the unwanted (corrupted) nucleotides.

<sup>1</sup>J.D. Watson and F. H. C. Crick, **Nature**, 171, 737-738 (1953).

<sup>2</sup>V. Alexander Stefan. **Beat Wave Driven Free Electron Laser** (S-U-Press, 2002, La Jolla, CA)[cf. V. Stefan, et al., **Bull. Am. Phys. Soc.** 32, No. 9, 1713 (1987)]

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