Exploration

Feynman Approach to Brain Wave Emission Process

Janina Marciak-Kozłowska[1] & Miroslaw Kozlowski[*2]

[1]Institute of Electron Technology, Warsaw, Poland
[2]Warsaw University, Warsaw, Poland

Abstract

We previously formulated and applied new model of the emission of the brain photons. In this paper, we use Feynman diagram method for the emission of brain photons and obtain new description of the emission. The calculation presented are in agreement with experiment.

Keyword: Brain wave, photon, emission process, Feynman diagram.

1. Introduction

In papers [1], we developed the model of the emission of brain waves. The model was based on Planck type formula for the emission brain waves. In this paper we extended model for the inclusion of the mechanism for the excitation neurons. We describe excitation of neurons bt Schumann photons. In result the excited neurons emitted brain photons (brain waves). The interaction of Schumann photons with neurons we describe as the first order Feynman diagram with constant vertices.

2. Feynman Diagram Model

The most effective method for quantum processes calculations is Feynman diagram calculations. In this paragraph we calculate with the help of Feynman method the Schumann wave interaction with human neurons,i.e

Photon $_{\textbf{Schumann}}$ **+ Neuron** $_{\textbf{Ground state}}$ **=Neuron** $_{\textbf{Excited}}$**_-Neuron** $_{\textbf{Ground State}}$**+ Photon** $_{\textbf{Brain}}$ **(1)**

Let us denote p_i -four momentum for *i*-object, where *i*=1,2,3,4,5 is the 4-momentum for Schumann photon, 2-Neuron,3-Neuron excited, 4- Brain photon, 5-Neuron ground state.

According to Feynman prescription we obtain from (1)

* Correspondence: Miroslaw Kozlowski, Prof. Emeritus, Warsaw University, Poland. Email: m.kozlowski934@upcpoczta.pl

$$(p_1 + p_2)^2 = p_3{}^2 = (p_4 + p_5)^2$$

$$A_i = \frac{1}{((p_3{}^i)^2 - (m^i)^2 + \gamma^2)}$$

(2)

where A (p_1, p_2) is the amplitude for reaction (1) In formula (2) m_i is the invariant mass for the i-th excitation state for excited neuron and γ is the width of the energy state. For the excitation state we as a first order approximation applied the harmonic oscillator model, i.e: m_0,, $2m_o$, $3 m_0$, ...

The cross section for the emission of brain photon is

$$\frac{d\sigma}{dE} = \sum_i A_i^2 \qquad (3)$$

where E is the energy of the brain photon

The result for calculation is presented in Fig.1, For m_0 we take m_0=10^{-15}eV and $\gamma = \frac{m_i}{2}$ [1].

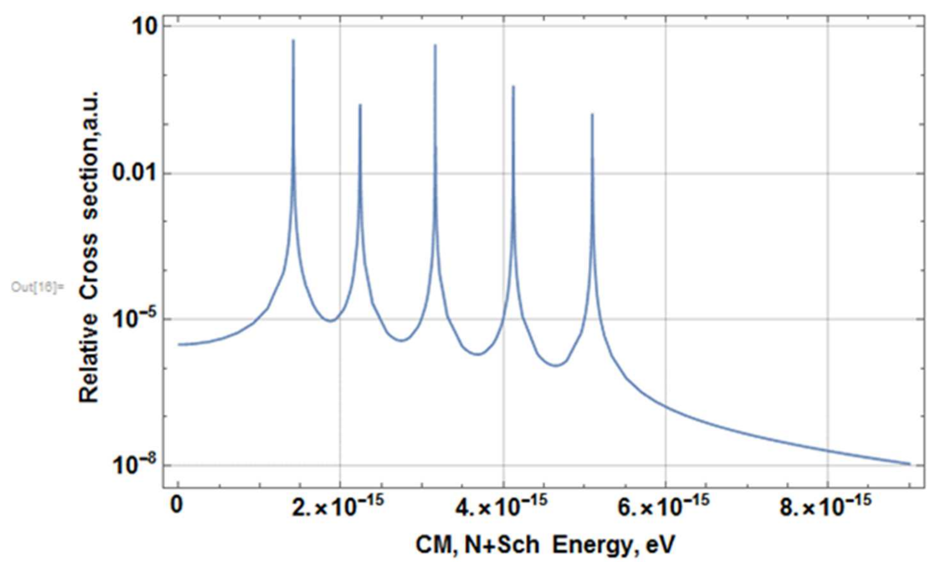

Fig. 1. Cross-section for the emission of brain photons (brain waves)

References

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