Mathematical Models of Restrictive Potentials

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ABSTRACT: The restrictive potentials appearing in earlier works: delimitating free volition or motion backwards the time or disturbing the experiment with two slits have been considered. Next, their simple mathematical models have been presented, which allow to describe their characteristic physical features.

1. Introduction

The potentials delimitating free volition [1], motion backwards the time [1] and disturbing the experiment with two slits [1] have been analyzed. The potential with maxima making enable free motion in the space-time can be accepted as the restrictive potentials delimitating free volition.

2. Time potential

The plane moving along the time straight line making more difficult the motion backwards the time is a model of time potential. The tunneling rearwards the time through other dimensions is possible.
The impossibility of making something can be described by the potential of a wave-guide with the axis along the axis of time and confined in two dimensions and from behind in time dimensions. Only the motion forwards the time is possible.

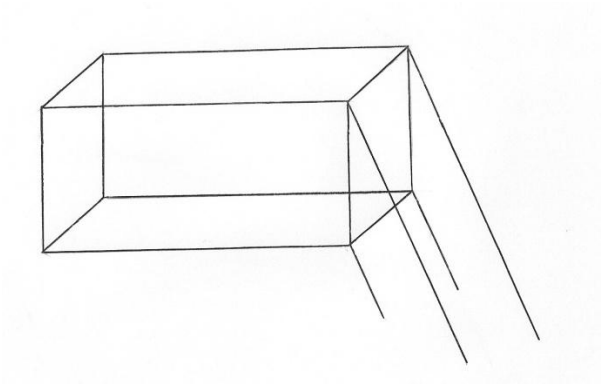

Fig. 1

This difficulty can be eliminated by the appearance of the type of time-like dimensions $t = (t_a \pm t_b)$, permitting the motion not only forwards the time but in the wall of potential too.

The time-like dimension potentials $V = V(t_a \pm t_b)$ make possible the motion backwards the time, as well. In the slit between two potentials the analogs of Josephson's currents exist. M.J.Duff's periodic time [2] corresponding to the blockade at both sides of the axis of time is the quantum potential too. The quasi-time quaternion dimension making possible the tunneling in the third dimension and the motion in the fourth dimension is the special case of time dimension.

The conjugation and the disturbing during the experiment with two slits can be considered as the step potential of the flip-flop type. The appearance of the potentials of the time type or time-like type may be steered by the potential of the flip-flop type. The potential of the type flip-flop can be sharp or dispersed (fig. 2).

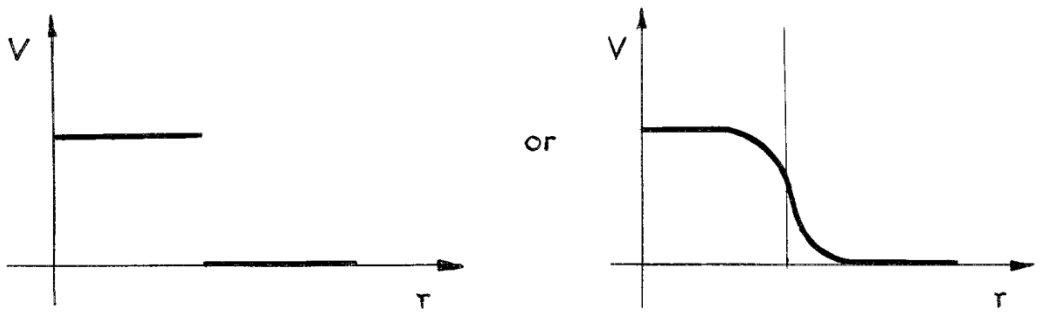

Fig. 2

References:

[1] Z. Morawski, "Statistical or Classical Reality", this website

[2] M. J. Duff, C. N. Pope, E. Sezgin, Physics Letters B, vol. 225 no 4, 27 July 1989