λ-Time

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Below we decribe some generalizations of Euclidean space and Minkowskii space. We take into account anisotropy of time and its variable density. The setting of this problem see in Vladimir M. Miklyukov, "Self-Instructor in Mathematical Analysis for Engineers and Programmers" (Section 17.5), 2011, www.uchimsya.co V.M. Miklyukov, "Analysis on Anisotropic Spaces", 2011, www.uchimsya.co and V.M. Miklyukov, "Multifactor Time", 2012, www.uchimsya.co. It also motivates the concept of "superslow process" which was introduced in the eponimous set of our articles (see the compendium "Superslow Processes", n. 1, Volgograd: izd-vo VolGU, 2006 or at www.uchimsya.co).

On history of the concept, see I. Newton, "Mathematical Beginnings of Natural Philosophy", Zoological and Ecological Works of Ch. Darvin, Ch. Layel, V.I. Vernadskii.

From the newest literature dealing with this concept see N.A. Kozyrev, "Selected Works", Leningrad: izd-vo Leningrad. un-ta, 1991; G.P. Aksenov, "Cause of Time", M.: Editorial USSR, 2001; G. Zimmel, "Contemplation of Life. Elect", M.: 1996; A.L. Chizhevskii, "Terrestrial Echo of Sun Storms", M.: Mysl, 1976.

Fix arbitrarily two positive constants λ_1, λ_2 and consider functions

$$t = \kappa_-(\tau) = \begin{cases} \lambda_1 \tau & \text{if} \quad \tau \leq 0, \\ \lambda_2 \tau & \text{if} \quad \tau > 0, \end{cases} \qquad (1)$$

and

$$t = \kappa_+(\tau) = \begin{cases} \lambda_1 \tau & \text{if} \quad \tau < 0, \\ \lambda_2 \tau & \text{if} \quad \tau \geq 0. \end{cases} \qquad (2)$$

The variable τ, defined by relations (1) or (2), we will call λ-time, $\lambda = (\lambda_1, \lambda_2)$. For $\lambda_1 = \lambda_2 = 1$ the quantity τ is usual time t.

The aim of this generalization is desire to obtain possibility of modulation of anisotropic processes walking with different speeds until and after events, accomplishing as $t = \tau = 0$.

Task 1. Assume that population demand for goods α is constant, however their price has changed. Describe the character of α at new time τ in different social groups. Give specific examples. □

Task 2. It is possible to expand the set of admissible values λ_1 and λ_2, assuming also negative values. It can be useful, for example, in description of some social and economic processes. Give examples. □

Cases, in which constants λ_1 or λ_2 are very large, correspond to "superslow" processes.

For λ_1 or λ_2 closed to zero, λ-time τ characterizes *explosive* processes.

Task 3. Give samples of superslow and explosive processes in economics (chemistry, medicine, literature). □