Free Motion of Mats

Anatoli Bedritsky

Abstract. In given article is described the inertial motion of mats, which are true initial particles of matter. The inertial motion of mats characterized by inertial acceleration.

Given article is one of a series of articles opening the real theoretical physics on the basis of existence of an ether. Mats - the smallest particles of an initial matter forming the ether or elementary particles depending on long or sphericity of mats. The ether represents the more spherical mats, which move independently from each other in emptiness in different directions, and at collisions they sharply change the velocity and the direction of motion. The ether is in all Universe.

1 Accelerated Acceleration and Acceleratedness of Free Motion of Mats

If an given mat is conditionally motionless in relation to another mats and if this mat has collided with any another mats, then the given mat acquires free acceleration of motion in the given direction. The bigness of the acceleration is not constant, but constantly increases. Such a character of acceleration is formed in mats in the process of their collisions upon the propagation of impact momenta. The acceleration, which is not constant, but is gradually increasing, is called *accelerated acceleration.* In free accelerated motion of mats the velocity of a mat is not increasing with a constant increment, but multiply by an numeric factor. For instance, if we assume a unit of time the period during which the velocity of motion of a mat increases by a factor of 2, the mat will have the same character of acceleration during its entire period of free motion until the next collision.

Since acceleration is the additional velocity per unit of time, we will denote it by ΔV.

The *acceleration* at a given period t is defined as

$$\Delta V = V_t - V_{t-1},$$

where V_t is the velocity of the mat at the period t and V_{t-1} the velocity of the mat at the period $t-1$.

Since in a given free accelerated motion the character of accelerated acceleration is being preserved, the ratio of the acceleration of motion in a given period t and the acceleration in the previous period $t-1$ is constant and is called the *acceleratedness* of accelerated motion at the given chosen time unit.

Acceleratedness is denoted by Y and is a geometric progression:

$$\frac{\Delta V_t}{\Delta V_{t-1}} = \frac{\Delta V_{t+1}}{\Delta V_t} = \frac{\Delta V_{t+n+1}}{\Delta V_{t+n}} = Y$$

Since the velocity of the free motion of a mat changes proportionally to the acceleration of this motion, the ratio of the velocity at some period of time to the velocity at the previous period during the entire current time is also acceleratedness and a geometrical progression:

$$\frac{V_t}{V_{t-1}} = \frac{V_{t+1}}{V_t} = \frac{V_{t+n+1}}{V_{t+n}} = Y$$

$$V_t = V_{t-1} + \Delta V_t = V_{t-1} \cdot Y$$

$$\Delta V_t = V_{t-1} \cdot Y - V_t = V_{t-1} \cdot (Y - 1)$$

If $Y = 2$, then the acceleration of a free motion of a mat at a given period is the half of the velocity of the mat in this period and equal to the velocity of the mat in the previous period:

$$\Delta V_t = \frac{V_t}{2} = V_{t-1}.$$

At collision two mats, the acceleration and the velocity of free motion of each mat sharply increase or decrease, depending on condition of their collision. (See article "Theory of collision of mats"). At collision of the mats changes also the direction of their motion.

If the given mat conditionally motionless relatively of all surrounding mats, then at collision of this given mat with another mat the acceleration and the velocity of free motion of the given mat through time t after the collision possible define from geometrical progressions according to formula:

$$\Delta V = f(t) = \Delta V_0 \cdot Y^t,$$

$$V = f(t) = V_0 \cdot Y^t.$$

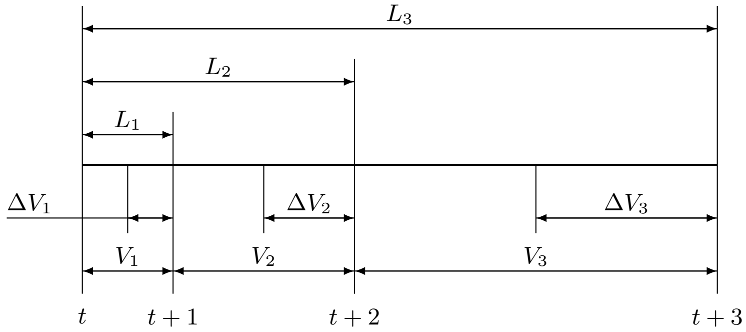

Figure 1: Changes in velocity and acceleration. Here L_1, L_2, L_3 are the distances passed by the mat 1, 2, or 3 time periods after the current time t; V_1, V_2, V_3 are the velocities of the mat 1, 2, or 3 time periods after the current time t; ΔV_1, ΔV_2, ΔV_3 are the accelerations of the mat 1, 2, or 3 time periods after the current time t.

2 Choice of Time Unit for Determining Velocity of Motion

The changes in the velocity and acceleration of the free motion of a mat is determined by the distances passed by the mat at subsequent time periods (see Fig. 1).

In Fig. 2 we present three examples of the velocity of the free motion of a mat for different time units. In the first example (the lowest scheme) the period is the shortest. In the second example (in the center) the period is two times larger than in the first one, and in the third one (upper) the period is three times larger than in the first example.

As is seen from Fig. 2, the acceleratedness of the accelerated free motion of mats depends on the choice of the duration of the time unit. If we increase the time unit by in several times (n), the acceleratedness will be increased by the n-th power, i.e.

if

$$t_{\text{unitnew}} = t_{\text{unitold}} \cdot n$$

in this case

$$Y_{\text{unitnew}} = Y^{n}_{\text{unitold}}$$

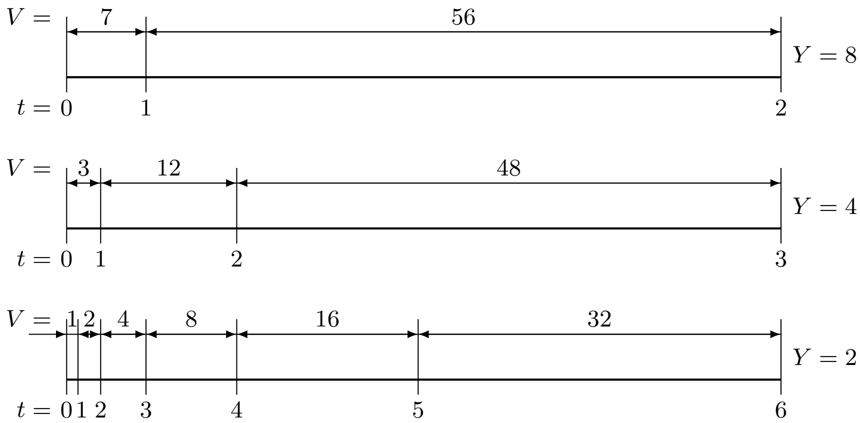

Figure 2: Velocity of free motion.

Conclusion

1. Free motion of mats has free acceleration and this acceleration is not constant, but accelerated.

2. Since mats have free motion with accelerated acceleration, then the mats in a vacuum may have a velocity higher than that of light, but because of collisions the velocity of mats change and can not increase infinitely.