## Alternative to the Mainstream A model by Dr. Manfred Pohl

The Standard Model of Cosmology, which postulates the origin of the universe 13.8 billion years ago, is based on a large number of unobservable postulates that are speculative and cannot be proven. In the open letter from 33 scientists on the Big Bang theory, published in the American journal *New Scientist* (May 22th – 28th, 2004, page 22) they state:

"The big bang today relies on a growing number of hypothetical entities, things that we have never observed -- inflation, dark matter and dark energy are the most prominent examples. Without them, there would be a fatal contradiction between the observations made by astronomers and the predictions of the big bang theory. In no other field of physics would this continual recourse to new hypothetical objects be accepted as a way of bridging the gap between theory and observation. It would, at the least, raise serious questions about the validity of the underlying theory."

The most striking misconceptions are:

- The assumption of a Big Bang singularity of so-called "pure" energy, which has no mass, as the origin of the universe,
- The postulate of a begin and an end of the universe (from the Big Bang to the Big Rip),
- The inflation phase of the universe after a Big Bang, in which space was said to expand at multiple times the speed of light,
- The declaration of a general accelerated expansion of the so-called "entire" universe,
- The postulation of a Hubble constant as a measure of the accelerated expansion of the universe,
- The explanation of the existence of dark energy for compensating the energy missing from the expansion model,
- The explanation of the existence of dark matter,
- The explanation mass could be converted into energy and vice versa,
- Trying to find gravitational waves, which cannot exist because gravity is not a material object to which movement could be attributed.
- The so-called primordial nucleosynthesis after the genesis of the universe.

The analysis of all these faulty postulates, which in their sum result from the lack of a dialectical-materialistic definition of matter, leads to the synthesis of an alternative model that can provide a realistic explanation of the processes in the universe without the unprovable hypotheses.

# The Model of Matter Motion in the Universe

Cosmic matter, which manifests itself as mass and energy, is a conserved quantity. This means it cannot arise and cannot disappear, it exists eternally. It is sporadically distributed, meaning it is disordered, in infinite space. Its structure is infinitely diverse. There is no central point, no center of matter, meaning no preferred coordinate system in space. The density of matter, meaning its concentration or deconcentration, is spatially inhomogeneous. Its limits are almost empty space – the minimum density –

and the black hole – the maximum density. There is no absolutely empty space (vacuum) and no infinite matter density (singularity).

#### <u>Axioms</u>

The first axiom of the universe:

### The genesis of matter is excluded.

The universe exists eternally. There is no begin and it will be no end. This follows from the principle of matter as a conserved quantity.

#### The second axiom of the universe: All the matter is in eternal motion.

The cause of all motion is the forces inherent in the matter. There are no forces external of the matter. There is no space outside of the universe, and therefore no exmaterial influences on the movement. There is no Matter without motion. Motion in the sense of this axiom is any kind of change in the state, composition, structure, and spatial position of material objects.

## The third axiom of the universe: **The total energy of a finite mass is finite.**

The temporally unlimited acceleration of a mass does not lead to an unlimited increase in its velocity and consequently not to an unlimited increase in its kinetic energy  $(E_{kin}=m \cdot v^2/2)$ . Velocity and way are relative quantities. They depend on the inertial system. Their relationship is given by the fundamental physical constant, *the speed of light in vacuum, c* (Lorentz). The limiting energy of a finite mass is  $E=m \cdot c^2$  (Einstein). There is no energy without mass ("pure" energy).

#### The main forces for the movement of the matter are:

In the macrocosm: The gravity. The angle between the gravitational vector and the velocity vector, i.e., the nonlinear acceleration, leads to the all-encompassing rotation of all cosmic matter in its structural elements (gas, stars, star systems, galaxies, metagalaxies). As the result of general rotation, general centrifugation is formed. Gravity and centrifugation are in dynamic equilibrium state. The Rotation creates Coriolis forces, which reflect on the rotation. Electric forces are possible when cosmic bodies have a charge.

<u>In the microcosm</u>: Molecular forces, atomic forces, and nuclear forces. These forces create rotating particle systems that appear to be at rest in the external inertial system (potential particle energy). When these forces are canceled or modified (chemical reactions, particle interactions, nuclear fission, nuclear fusion), longitudinal particle motions arise (kinetic particle energy).

### Theoretical principles of motion

The motion of bodies follows the laws of motion of N-body systems. These are the motions of bodies in space without the action of external forces. Differential equations can be formulated for these motions, the solutions of which describe the motions. Reduced to two bodies, the equations are:

$$\frac{d^{2}\overrightarrow{s_{1}}}{dt^{2}} = -\frac{1}{m_{1}} \cdot \frac{\partial}{\partial \overrightarrow{s_{1}}} V(|\overrightarrow{s_{1}} - \overrightarrow{s_{2}}|)$$

and

$$\frac{d^{2}\overrightarrow{s_{2}}}{dt^{2}} = -\frac{1}{m_{2}} \cdot \frac{\partial}{\partial \overrightarrow{s_{2}}} V(|\overrightarrow{s_{1}} - \overrightarrow{s_{2}}|)$$

 $\overrightarrow{s_1}$ ,  $\overrightarrow{s_2}$  – distance vectors,  $m_1$ ,  $m_2$  – gravitational masses

Depending on the constraints,

- the angle between the velocity vector and the gravitational vector,
- the sizes of the gravitational masses, and
- the velocity vectors of the gravitational masses

three groups of solutions arise:

- 1. Approach (distance decrease) → passing at the smallest distance → moving away (distance increase) in parabolic or hyperbolic orbits.
- 2. Approach (distance decrease)  $\rightarrow$  passing at the smallest distance  $\rightarrow$  orbiting in elliptical orbits.
- 3. Approach (distance decrease))  $\rightarrow$  collision. This results in the creation of new objects of varying numbers and sizes with different motion parameters.

The occurrence of the solution group 3 (collision) has the smallest probability of the three solution groups because the ratio of object distances to object sizes is almost always very large (usually on the order of  $10^3$  to  $10^5$ ).

The energy balance in the universe is the sum of the total energy of all cosmic objects. Total energy exists in various energy types. So-called dark energy does not exist.

Since mass and energy are conserved quantities, they cannot be converted into one another.

Matter is mass and energy. Mass and energy are equivalent manifestations of matter. Mass is the measure of the energy content of a body (Einstein).

Forces (gravity, centrifugation) are not material objects; they are not subjects to propagation. They act instantaneously, meaning without a temporal sequence. The concept of motion cannot be applied to forces.

There is no general expansion of the universe, neither uniform nor accelerated. The movement of the cosmic matter is chaotic due to the chaotic constraints for the equations of motion.