An alternative theory of the evolution of the Universe

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Abstract

We assume that space is static and infinite. The acual favored theory is the big bang theory. According to this theory the Universe is about 14 billion years old. Space has been created after a small veriation of spacetime. Mass has been created and space has been expanding immediately after this variation. What has been disturbing us is that the number of particle in the Universe is constant and the sky is not becoming brighter.

1 Introduction

If we assume that light has a fixed velocity and space is finite the sky should become brighter all time since light from stars far away should arrive here on Earth constantly.
If the Universe is infinte this problem vanishes.
We assume that space was there and empty at the origin of stars and planets. Probably one particle was created by an unkown process. The procress is possibility spontaneously and randomly.
Spontaneous processes are known in physics, f.e., the spontaneous emission of a photon within black body radiation. Moreover the electron positron creation at 511 MeV. Or the neutron decay into a proton, an electron and a neutrino.

2 The alternative theory

Many particle theory of quantum mechanics Schrödinger theory is looking for the solution of the equation:

$$i\hbar\frac{\partial|\psi_1\psi_2\dots\psi_n>}{\partial t} = \Big(\sum_n \frac{p_n^2}{2m_n} + \sum_{1,2,\dots} U_{1,2,\dots n}\Big)|\psi_1\psi_2\dots\psi_n> \qquad (1)$$

Our theory makes use of the idea of a classical billiard game. A billiard game contains only pair interactions of the balls. That means we omit correlations of more than two particles. Of course in a Schrödinger many particle system is respecting interactions of a particle with all other other particles back to the first interaction. That means we omit the memory of the particle, only pair interactions are respected.
We introduce creation and annihilation operators a^+a for fermions, which follow the anticomutation relation

$$1 \;=\; a^+a + aa^+ \qquad (2)$$

The equation to solve is:

$$i\hbar\frac{\partial|\psi>}{\partial t} \;=\; \Big(\sum_n \epsilon_n \dot{a}_n^+ a_n + U_{n>m} a_n^+ a_n a_m^+ a_m\Big)|\psi> \qquad (3)$$

If we apply the commutation relation 2 onto 3 we receive after the following interpretation a new equation. The following idea needs a motivation:

$$a^+a \;=\; 1 - aa+ \qquad (4)$$
$$\;=\; 1 + b^+b \qquad (5)$$

If we assume that a Dirac sea with infinite fermions is existing the electron positron pair creation is f.e. a possible interpretation. Since the Dirac sea is made of an infinite number of particles, it is possible that the positron is refilled by other particles.

$$i\hbar\frac{\partial|a>}{\partial t} \;=\; \epsilon_a|a> + \epsilon_b\epsilon_c|bc> + U_{ab}|ab> + U_{bd}U_{dc}|bdc> \qquad (6)$$

3 Conclusions

Our model assumes, that it is possible that a particle is interacting with the vaccum and a pair of particles come into existence in the known Universe. We

believe that randomly and spontaneously particle pairs come into existence. We assume that a Dirac sea of an infinite number of particles is existing.
We believe it is unlikely that the number of particles in the Universe is contstant. It should be possible measuring new particles by observing a closed box of water f.e. and wait.
Life shows that f.e. forms of bodies are changing. But what is assumed is that life is taking place in an open system. It is necessary to make an experiment where the system is not open but closed.