Predictions

1. Antiphotons (emitted by antimatter) are annihilated by photons (emitted by matter); photon-antiphoton annihilations result in lepton-antilepton fundamental pairs. Thus, when the light of quasars (it is mainly synchrotron antiphotons) is illuminated by synchrotron photons, pairs of electron-neutrino electron-antineutrino are produced.
2. The gravitational potential of antiphotons is generated only by the gravitational mass of antimatter. Thus, the light of quasars does not gain energy when falling down the gravitational field of Earth.
3. Primary cosmic rays have no observable source; appearance of primary cosmic rays inside detectors can be observed in space beyond the Moon's orbit.
4. The activity of cosmic rays toward Mars is significantly less intensive than this activity toward Earth.
5. An increase in the activity of cosmic rays anticipates volcanic eruptions.
6. The average energy per particle of cosmic rays will very gradually decrease.
7. Gravitational mass is an invariant quantity; the gravitational mass of a body/particle, unlike its inertial mass, does not depend on its energy content.
8. Photons/antiphotons do not contribute to the gravitational field; the pseudo gravitational mass of photons/antiphotons determines their gravitational potential energy, but the gravitational mass of photons/antiphotons is identically zero.
9. Gravitational repulsion between matter and antimatter.
10. Gravitational influence is instantaneous; gravitational waves are but ripples in the curvature of space-time. The curvature itself is determined

instantaneously by the gravitational mass at the gravitationally simultaneous space of each event.

11. A cluster of galaxies is a gravitational crystal in which the two kinds of attraction (attraction between matter galaxies and attraction between antimatter galaxies) are balanced by the repulsion between matter galaxies and antimatter galaxies. Thus, observations of the local cluster will reveal a crystal structure (Due to the special properties of the interaction between antimatter's light and matter, antimatter galaxies are of higher redshift than matter galaxies of the same circumstances; antimatter galaxies are observed as cosmological radio sources of faint visible radiation, and their nuclei are observed as quasars. Hubble's law is especially misleading when antimatter galaxies are considered.)
12. Galaxies oscillate at their vicinities; the course and magnitude of motion of galaxies in the local cluster, Andromeda in particular, will be changed.
13. The number of generations of leptons/quarks is limited only by the maximal energies available in nature and by the rules of energies required for the fusion of new generations; leptons/quarks of the fourth generation can be observed (the boson which is misinterpreted as the hypothetical Higgs-boson is probably composed of a fourth-generation quark/lepton and its antiparticle). An example: the meson composed of an up-antiquark and a bottom-quark is fused to a fourth-generation charged lepton and its antineutrino.
14. If, after an electron-positron annihilation, one gamma photon moves upward and the other gamma photon moves downward, there is a 50% chance that both of them will gain energy and a 50% chance that both of them will lose energy.

15. There is a difference between the afterglow of gamma ray bursts emitted from an antimatter galaxy (mainly the cyclotron/synchrotron radiation is observed; its red-shift is reinforced, and it does not gain energy while falling down the gravitational field of Earth) and the afterglow of gamma ray bursts emitted from a matter galaxy (all the afterglow radiation can be observed; its red-shift is due only to the time-effect and to Doppler affect, and it gains energy while falling down the gravitational field of Earth).
16. The Hydrogen Cycle—dead stars turn into nebulas where they are recycled back to hydrogen (it is done by extremely violet-shifted background radiation); young solar systems are created; the past-shift turns to red past-shift, and life evolve at the new habitant zones.
17. The expanding-universe cosmology is a big mistake; it results from applying a simplified theory outside the domain where it is useful. Thus, it will never be observed that the universe was denser in the past, and the "horizon" does not exist; the most remote systems will never disappear from sight.
18. Mixed atoms are atoms in which at least one participant is an antimatter participant, and at least one participant is a matter participant (e.g., positronium and antiprotonic helium). The wave-function of a mixed atom is a superposition of two states; in one state the gravitational mass of the mixed atom is positive; in the other state it is negative. The same is true also for mesons.
19. The light of quasars cannot excite matter substance.

Gravitational Potentials

The false idea of broken matter-antimatter symmetry results from a misunderstanding of the cosmic rays, and, in general, from applying a simplified

theory outside the domain where it is useful. In fact, the universe is a solid gravitational crystal constructed of matter and antimatter galaxies. At each epoch,[1] different systems in each galaxy experience different phases of the directionally periodic non-homogeneity of time, and consequently, different phases of the past shift. It is red shift for a very long period of time followed by ultra-blue shift for a much shorter period of time, then followed by red shift for a very long period of time and so on and so forth.

The gravitational potential of massive substance (matter and antimatter) is instantaneously generated by the gravitational mass of matter and by the gravitational mass of antimatter (by the positive and the negative gravitational masses).

The gravitational potential of photons (emitted by matter) is instantaneously generated only by the gravitational mass of matter (only by the positive gravitational mass).

The gravitational potential of antiphotons (emitted by antimatter) is instantaneously generated only by the gravitational mass of antimatter (only by the negative gravitational mass).

These rules guarantee that
1. no massive substance can penetrate its antimatter galaxy.
2. light of any kind encounters no impenetrable potential barriers and, for light, the universe is positively curved. Thus, when light is not absorbed by other systems,[2] it returns back to its emitting system (cosmological background radiation).
3. when light is absorbed in its antimatter galaxy, it is redshifted (in addition to the past-shift due to the non-homogeneity of time). This is the case with quasars' light and with other light emitted from antimatter galaxies.

Related predictions (from the list above): #1, #2, #9, #10, #11, and #12.

[1] Absolute simultaneity, in addition to Einstein's simultaneity, is introduced by Periodic Physics.
[2] Long-travelling light is propagated in ellipsoid superpositions, such that most of it escapes absorption by systems other than its emitting system to which it eventually returns in converging superpositions.