

Predictions

1. Quasars' light is not deflected by the sun's gravity.
2. The gravitational mass of particles is an invariant quantity; it does not depend on their energy content.
3. The gravitational mass of photons is zero.
4. Gravitational repulsion between macroscopic matter and macroscopic antimatter. Free antihydrogen atoms are not attracted by Earth's gravity; they either are repelled or not affected by it.
5. A cluster of galaxies is a gravitational crystal in which the two kinds of attraction (mutual attractions between matter galaxies and mutual attractions between antimatter galaxies) are balanced by the repulsion between matter and antimatter. Thus, observations of the local cluster will reveal a crystal-like structure in which matter galaxies are visible, while antimatter galaxies are observed as cosmological radio sources of faint visible radiation, and their nuclei are observed as quasars.
6. Galaxies oscillate at their vicinities; the course of motion of galaxies in the local cluster might be changed.
7. High-energy cosmic rays have no observable source; events of appearing cosmic rays directed radially toward Earth can be observed in space beyond the Moon's orbit.
8. The number of leptons'/quarks' generations 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 a Higgs-boson is actually a fourth-generation meson).

9. Photons can be annihilated by their anti-photons (emitted by antimatter), and lepton-antilepton pairs are produced (most likely electron neutrino-electron antineutrino pairs).
10. If after an electron-positron annihilation one photon moves upward and the other downward, there is a 50% chance that both of them will gain energy and a 50% chance that both of them will lose energy.
11. The average energy of cosmic rays will very gradually decrease.
12. Stars eventually turn into nebulas where they are recycled back to hydrogen, from which young stars are created.
13. The predictions of the expanding-universe cosmology are false. First to mention: the universe was denser in the past; this will never be observed. Second to mention: the "horizon" gets closer, the most remote observable systems will be the first to disappear from sight; this will never happen.
14. Mixed atoms are atoms of 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.
15. Gravitational waves can be detected in the proximity of nuclear reactors.
16. A difference between the afterglow of gamma ray bursts emitted in an antimatter region (mainly the ex-mediation radiation is observed, and its red-shift is reinforced) and the afterglow of gamma ray bursts emitted in a matter region (all the afterglow radiation can be observed, and its red-shift is only due to the time-effect and to Doppler affect).
17. Long-duration gamma ray bursts, unlike short-duration gamma ray bursts, are not accompanied by gravitational waves.

18. The activity of cosmic rays toward Mars is much less intensive than this activity toward Earth.