



Contribution ID: 106

Type: Poster

Colliders and their Possible Georadiochemical Effects on the Environment

Tuesday, 13 May 2014 17:15 (1h 30m)

A dangerous factor is considered, which may precede the formation of black microholes, strangelets, magnetic monopoles and other objects in colliders, –the probability of turning the Earth into the “iron planet” or the flow of iron asteroids and meteorites. Proceeding only from real experimental evidence and theory-based provisions: 1) the quark-gluon plasma is already an experimental fact, 2) the dependence of the binding energy per nucleon from the number of nucleons in the nucleus is both experimentally and theoretically accurate, so we can assert that at the present moment the technical conditions for an uncontrolled conversion of all the chemical elements in the elements of Fe-Ni-Co group are already established, with the probability of catastrophic consequences for the Earth still extremely low, but 3) the possibilities of colliders are growing at a high speed and the dangerous threshold can be overcome in a very short time. A special group, established by CERN to evaluate the safety of experiments, presented a report which states that the Large Hadron Collider is not dangerous. The other dangerous process, which may occur from the uncontrolled formation of quark-gluon plasma of large volume and density in the conditions of the CERN experiment, is not considered at all. During this process, any substance turns into a cloud of elementary particles, which will condense in the process of cooling into the most energetically favorable state –the elements of the iron subgroup, which have the greatest values of the binding energy of the nucleons in the nucleus. The released energy will support this process till the complete conversion of all the chemical elements of the substance into the elements of the iron subgroup. It is believed that the first experimental results on the quark-gluon plasma were obtained in 1990 at CERN Super proton synchrotron (SPS) (the concept of a fireball has deeper historical roots [1] and appeared for the first time in the physics of cosmic rays). Then, in 2000, also at CERN, the discovery of this “new state” of matter was announced. In the colliders, the energy of particles and the density of their torrent are continuously increasing, which naturally leads to a more “hot” chromoplasma, and to the increase of its volume and density. According to the prevailing ideas of today, the unlimited expansion of the fireball is very unlikely, but there are other opinions. For example, Academician E. Feinberg believed that the lifetime of fireballs is greatly underestimated [1]; Heisenberg’s calculations were already giving the abnormally high cross-section of their formation [2]; and Fermi has long ago presented the scheme which allows a fireball to expand unlimitedly in the flow of the accelerator [3]. The works of B.L. Ioffe were also published [4], which presented the abnormal parameters of the fireball, significantly different from L.D. Landau’s calculations [4]. The probability of formation of an abnormally large fireball could be significant. The reaction of “ferruginization” may obtain a global or nearly global nature. The possible protective measures to prevent the probable future catastrophe are being considered, as well as the hazardous geotectonic conditions of the experiments at CERN.

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Session Classification: Poster Session - Radionuclides in the Environment, Radioecology

Track Classification: Radionuclides in the Environment, Radioecology