

REGISTRATION OF NEW STABLE HEAVY CHARGED PARTICLES IN COSMIC RAYS

YU. N. BAZHUTOV

State Technical University (MADI), P.O.Box 169, 105077 Moscow, Russia
Bazhutov@hotmail.com

A telescope of two coaxial scintillation detectors (an upper thin CsI crystal of $\varnothing 63 \times 0.35 \text{ mm}^2$ and a lower thick NaI crystal of $\varnothing 150 \times 100 \text{ mm}^2$) located vertically on the surface of the Earth was used to have during $T=106$ hours 23 events registered with increased ionization in each detector that turned out to exceed 10 times the ionization caused by cosmic rays. All the events excluding three background events are within two standard deviations from a curve calculated for non-relativistic single charged particles with mass $M_E=(175 \pm 25) \text{ GeV}/c^2$, going vertically along the telescope. Based upon the condition of being non-relativistic and the limitation on the dimensions of the experimental set-up, it follows that their life-time $t_E > 10^9 \text{ s}$. Their intensity in cosmic rays on the Earth surface is $J_E = (1,8 \pm 0.4) \cdot 10^{-6} \text{ cm}^{-2} \text{ sr}^{-1} \text{ s}^{-1}$ (at $E_E < 6 \text{ GeV}$, $P_E < 50 \text{ GeV}/c$).

The registered particles are in full correspondence with our phenomenological predictions, with previous experimental results of searching them for, and with the prediction of the <<mirror>> model which interprets a possibility of existence such hypothetical stable heavy hadrons (Erzions).