

## Mass composition of primary cosmic rays with energy above 10 PeV derived from observation of halo events in x-ray emulsion chambers

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**Abstract.** New simulations of gamma-hadron families with halo induced by PCR with energy  $E_0 > 10$  PeV are performed by MC0 code of quark-gluon string model. Previously it has been proved that MC0 code satisfactorily describes experimental data for PCR energy  $E_0 < 10$  PeV under assumption of normal PCR composition. Analysis shows that MC0 code is close to two another versions of quark-gluon string model (MQ and QGS Jet) and comparison with

experimental data confirms that at  $E_0 \geq 100$  PeV experimental ux of events with halo area  $S \geq 300$  mm<sup>2</sup> is 5–10 times larger than calculated one. The possible reasons for observed difference are discussed.

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