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Muon bundles as a sign of strangelets from the Universe

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Content

Recently the CERN ALICE experiment, in its dedicated cosmic ray run, observed muon bundles of very high multiplicities, thereby confirming similar findings from the LEP era at CERN (in the CosmoLEP project). Originally it was argued that they apparently stem from the primary cosmic rays with a heavy masses. We propose an alternative possibility arguing that muonic bundles of highest multiplicity are produced by strangelets, hypothetical stable lumps of strange quark matter infiltrating our Universe. We also address the possibility of additionally deducing their directionality which could be of astrophysical interest. Significant evidence for anisotropy of arrival directions of the observed high multiplicity muonic bundles is found. Estimated directionality suggests their possible extragalactic provenance.

Session

Cosmic ray and astroparticle physics

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