

Abstract Submitted
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Integral Neutron Multiplicity Measurements from Cosmic Ray Interactions in Lead THOMAS WARD, Techsource Inc., ALEXANDER RIMSKY-KORSAKOV, V.G. Khlopin Radium Institute, NIKOLAI KUDRYASHEV, V.G. Khlopin Radium Institute, DENIS BELLER, University of Nevada Las Vegas — Sixty element ^3He neutron multiplicity detector systems were designed, constructed and tested for use in cosmic ray experiments with a 30-cm cube lead target (306 kg). A series of measurements were performed for the cosmic ray configuration at ground level (3 meters water equivalent, mwe), in the St. Petersburg metro tunnel (185 mwe), and in the Pyhäsalmi mine in Finland (583 and 1185 mwe). Anomalous coincidence events with charged cosmic ray particles at sea level produced events with 100-120 neutrons due possibly to the total disintegration of the Pb nucleus. These events were also detected at 185 mwe, but the particles causing such disintegration are currently unidentified. A two layer 4π charged particle coincidence/anticoincidence system has been built and integrated into the system to help identify the charge of the originating particle events. Designs for a modular 100-cm cube lead target (11.35 mt) will be presented as well as examples of preliminary data from the various measurements and a discuss of future plans for underground experiments including possible searches for Weakly Interacting Massive Particles (WIMP, dark matter).

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