

PAIR METER TECHNIQUE MEASUREMENTS OF HORIZONTAL MUON ENERGY SPECTRUM

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The spectrometer BARS of the tagged neutrino facility of the Serpukhov accelerator (IHEP, Protvino) is used to measure the energy spectrum of cosmic ray muons at large zenith angles by means of the method based on the energy dependence of the cross section of direct electron pair production by muons (pair meter technique). The most important advantage of this technique is the absence of the upper limitation on measurable muon energies. The setup represents a fine-grained liquid-argon ionisation calorimeter with 3 m fiducial diameter and 18 m instrumented length, total target thickness being equal to 138 radiation lengths. Experimental data accumulated during 1996 - 1998 in a dedicated cosmic ray run (5500 hr net operation time, over 3 million reconstructed muon tracks) are analysed. Estimates of the muon spectrum parameters in the interval 0.1 - 10 TeV obtained with various modifications of the pair meter technique are compared with the available data of magnetic spectrometers in the overlapping energy range.