

Hadrons with energies of $E_h > 50$ MeV in EAS with $N_e = 10^5 - 10^7$

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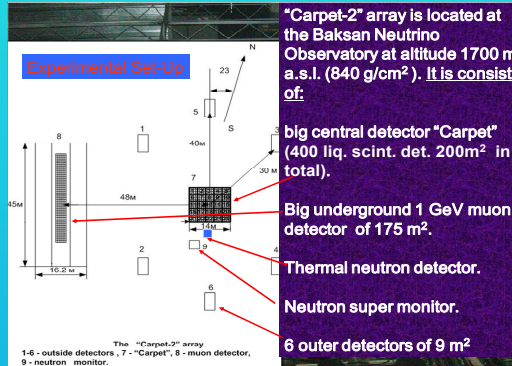
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Abstract

A hadron spectrum for $E_h > 50$ MeV has been obtained for EAS with $N_e = 10^5 - 10^7$ at a distance of 17 - 30 m from EAS axis using 6NM64 neutron monitor of the complex Baksan shower array "Carpet-2".

New registration system of the neutron monitor allowed us to measure the time intervals between pulses with a precision of $\sim 1 \mu s$.



The "Carpet-2" configuration allows to measure parameters of EAS for interval $N_e = 10^4 - 10^7$ ($E_0 = 10^{13} - 10^{16}$ eV) with the following accuracy: core location: $\Delta X_c = \Delta Y_c = 0.35$ m;

shower size $\Delta Ne / Ne = 0.1$;

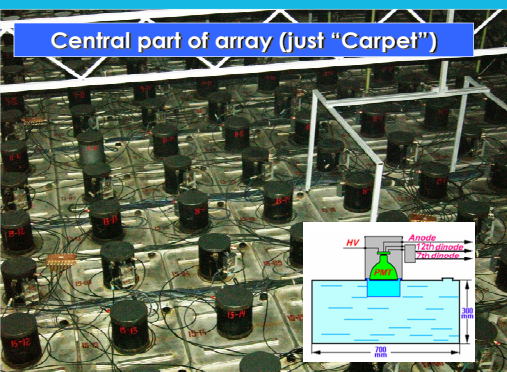
arrival direction $\Delta \psi \approx 3.5^\circ$;

studying EAS central density structure;

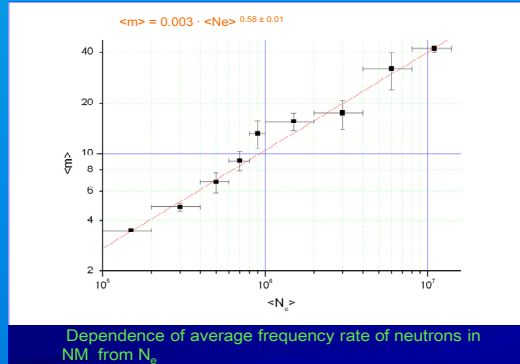
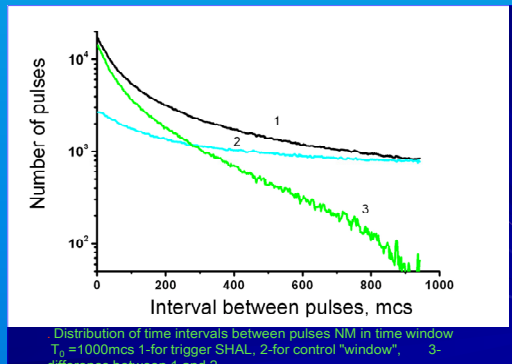
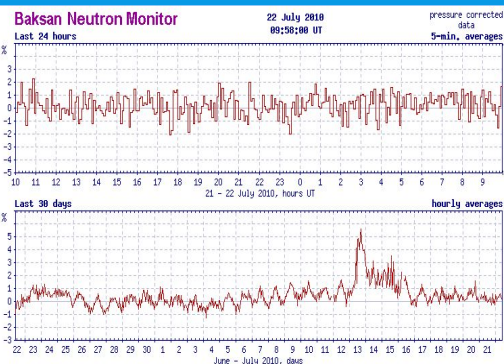
studying the structure of muonic component with 1 GeV threshold energy.

studying of hadronic component with 50 MeV threshold energy

Central part of array (just "Carpet")



Baksan Neutron Monitor



Conclusion

1. For showers with $E_0 > 6 \cdot 10^{13}$ eV the duration of hadron cascade in Neutron Monitor $t \sim 1000$ mcs is measured.
2. The dependence of average number of thermal neutrons in Neutron Monitor from N_e for EAS with $N_e = 10^5 - 10^7$, $\langle N_n \rangle = 0.003 \cdot \langle N_e \rangle^{0.58 \pm 0.01}$ is obtained.
3. Use of Neutron Monitor as the hadronic detector will allow to measure in further on "Carpet - 3" the characteristic of hadronic components of EAS with $E_h > 50$ MeV.

