ОБЪЕДИНЕННЫЙ
ИНСТИТУТ
ЯДЕРНЫХ
ИССЛЕДОВАНИЙ

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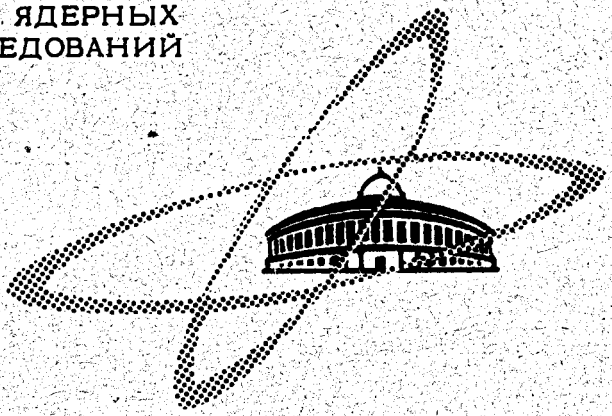

E1 - 4584

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Λp EFFECTIVE MASS SPECTRUM IN π -CARBON NUCLEI COLLISIONS AT 4.0 GEV/C

ЛАБОРАТОРИЯ ВЫСОКИХ ЭНЕРГИЙ

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Submitted to Nuclear Physics

The 55 cm long JINR propane bubble chamber was irradiated by π^--mesons at 4.0 GeV/c. After twofold scanning of 120000 photographs, 586 interactions containing a Λ-hyperon and, at least, one proton were identified. From the effective mass spectrum of the Λp system plotted in 10 MeV bins one can see the following:

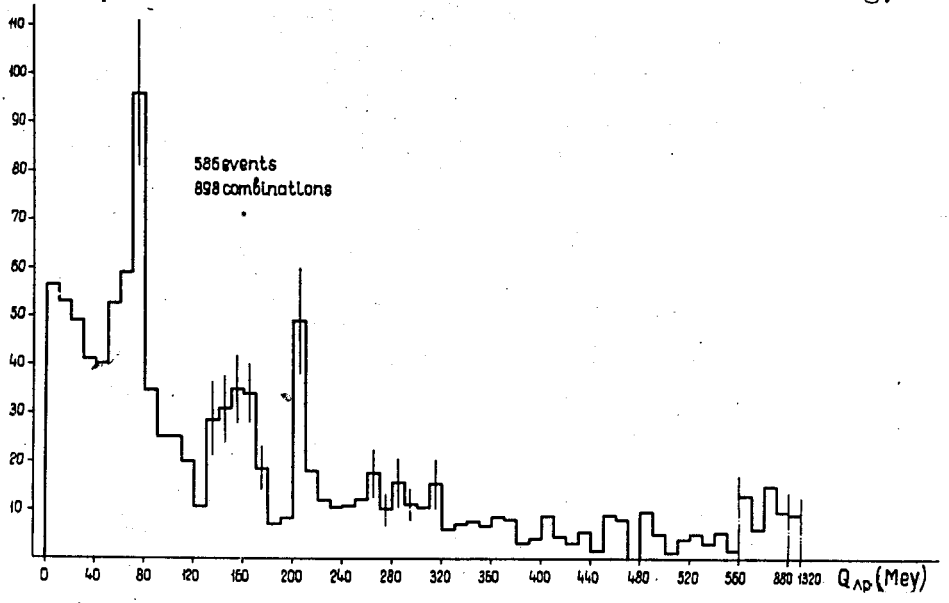

Fig. 1. The distribution over the total kinetic energy $Q_{\Lambda p}$ in the rest system in 10 MeV bins. The total number of combinations (898) is normalized to the total number of Λ-hyperons.

1. The peak due to the resonance in the Λp system on a virtual level at (4.8 ± 1.1) MeV (strong interaction in the final state) formerly observed [1,2] in neutron-carbon nuclei collisions is confirmed.

2. The formerly observed peak in neutron-carbon interactions in the region of (2180-2220) MeV [1] and $\Gamma \leq 40$ MeV is confirmed at a higher statistical significance level.

3. Two strong, statistically significant peaks at 2127 MeV and 2256 MeV with $\Gamma \leq 15$ MeV. This result is a new one.

References

1. B.A.Shahbasian, V.I.Moroz. JETP, v.5, N9, 307, Pisma (1967). B.A.Shahbasian, V.I.Moroz. JINR Preprint E1-4022, Dubna 1968.
2. Proceedings of the XIVth Intern. Conference on High Energy Physics, p. 173, report of R.D.Tripp, Vienna, 1968.

Received by Publishing Department
on July 3, 1969.