

THE PRELIMINARY RESULT FROM ($K_s^0 \pi^\pm$) SPECTRUM IN p+C REACTION AT 10 GeV/c.

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The scalar mesons have vacuum quantum numbers and are crucial for a full understanding of the symmetry breaking mechanisms in QCD, and presumably also for confinement ^{1,2}.

The $\sigma(600)$ and $\kappa(800)$ indeed belong to the same family as the $f_0(980)$ and $a_0(980)$ mesons (say if the $\sigma(600)$ were composed of 2 or 4 u and d type quarks) then no such mechanism would suppress² the decay $\sigma(600) \rightarrow \pi^+ \pi^-$ or $\kappa(800) \rightarrow K\pi$.

A study $K(892)$ vector mesons $K^{*\pm}(892)$ in pp interactions at 12 and 24 GeV/c by using data from exposure of CERN 2m hydrogen bubble chamber to p beams³. Effective mass spectra for $K_s^0 \pi^+$ and $K_s^0 \pi^-$ has shown³ there are small enhancement over mass region of 710-800 MeV/c² and significant statistical enhancement over mass region of $K^{*+}(892)(K^{*\pm}(892))$ at 12 GeV/c(24 GeV/c).

The experimental data from 2m propane bubble chamber have been analyzed to search for scalar meson $\kappa(800)$ in a $K_s^0 \pi$ decay mode for the reaction p+C at 10 GeV/c⁴. The

$K_s^0 \pi^\pm$ invariant mass spectrum has shown significant resonant structures with $M(K_s^0 \pi^\pm)$ $M(890) = 730$ and 890 MeV/c². The $M(890)$ peak is identified as the well known resonance from PDG.

References

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