Energy dependence of $\Xi$ and $\Omega$ production in Pb+Pb collisions at CERN SPS

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Abstract

In the context of its energy scan program the NA49 experiment has taken data on Pb+Pb reactions at beam energies ranging from 20 to 158 $A$ GeV. One of the striking observations is a maximum in the relative strangeness yield in central Pb+Pb collisions at low SPS energies. This motivates a detailed study of multiple strange hyperon production as function of the center of mass energy.

Here we report the new results on $\Xi^-$, $\Xi^+$, $\Omega^-$, and $\Omega^+$ production in Pb+Pb collisions. At 40 $A$ GeV corrected rapidity and transverse mass spectra will be shown for $\Xi^-$ and $(\Omega^- + \Omega^+)$, measured in central collisions. Additionally, a study of the centrality dependence of $\Xi^-$ production was performed.

The ratios $\Xi^+/\Xi^-$ and $\Omega^+/\Omega^-$ will be presented for central Pb+Pb collisions at 20, 30, 40 and 80 $A$ GeV and compared to previously measured results at 158 $A$ GeV.