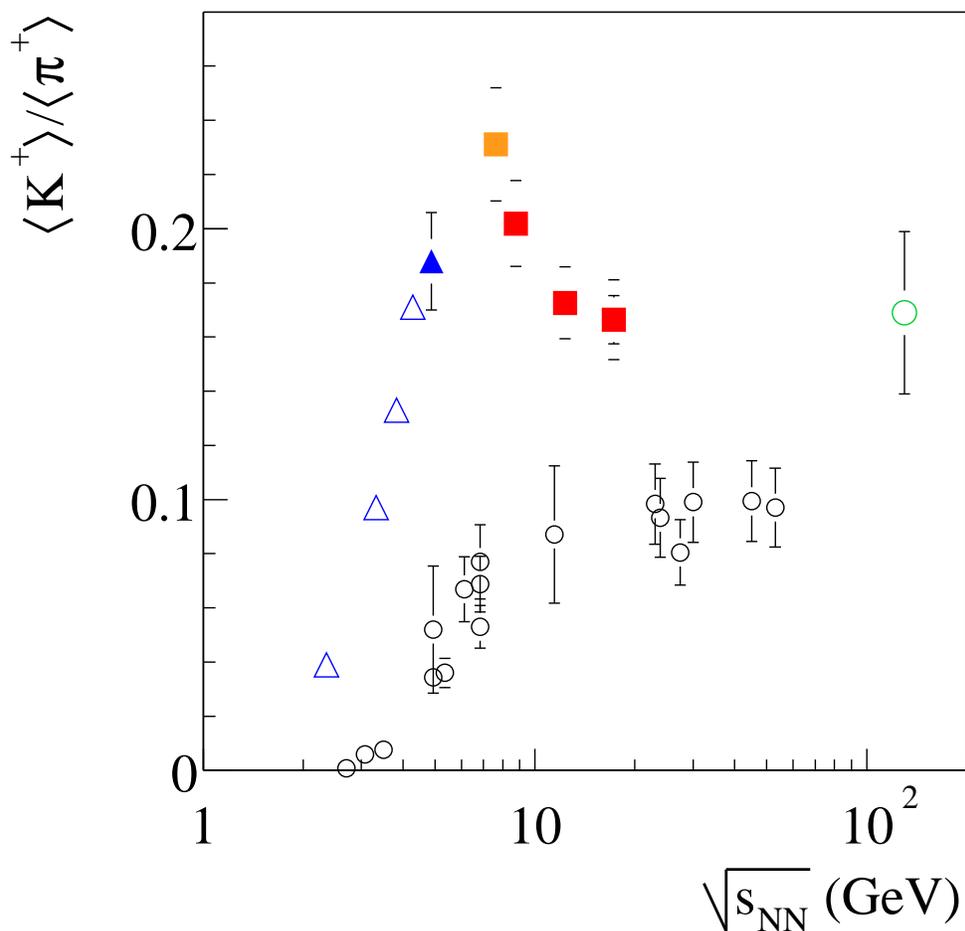


Steepening of Energy Dependence of Pion Multiplicity in Central Pb+Pb Collisions in SPS Energy Range

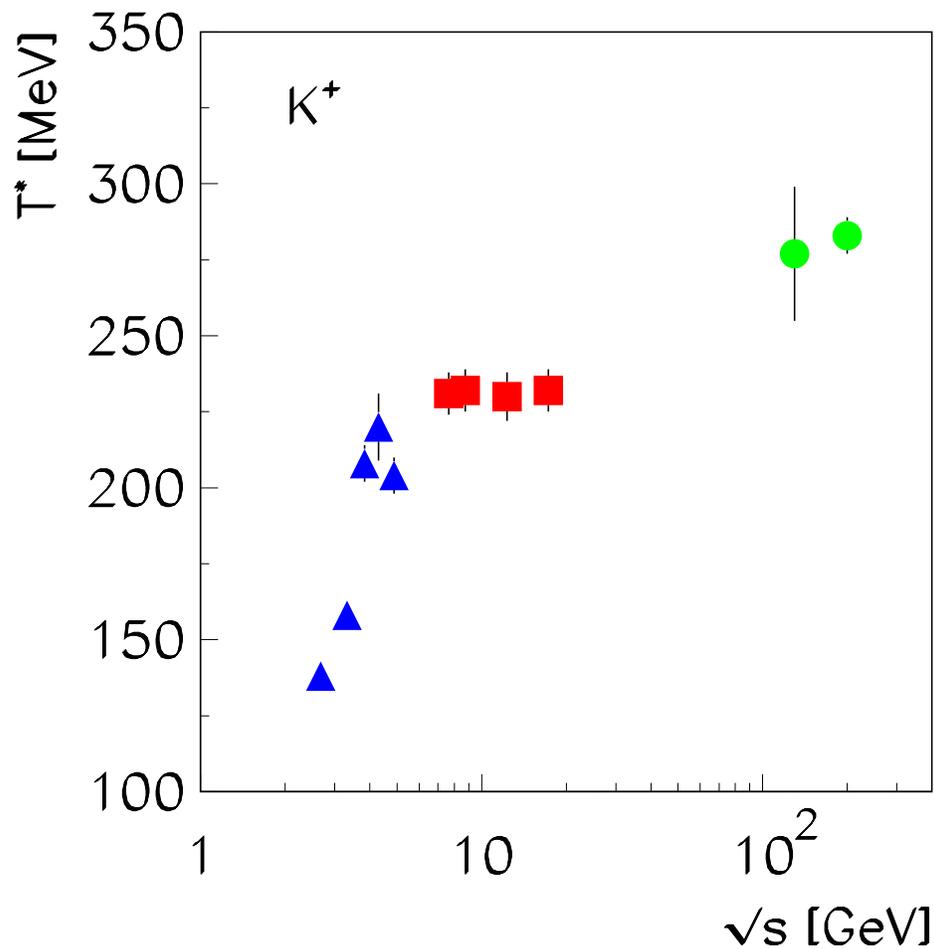
May Indicate Onset of Deconfinement

Within a statistical approach the ratio of pion multiplicity $\langle \pi \rangle$ (measure of entropy) to the number of wounded nucleons $\langle N_W \rangle$ (measure of baryon number) is expected to rise linearly with the energy variable $F \approx s_{NN}^{1/4}$ with the slope being proportional to $g^{1/4}$, where g represents the number of internal degrees of freedom. At deconfinement g increases due to activation of partonic degrees of freedom which leads to the observed (at low SPS energies) steepening of the energy dependence of pion multiplicity in central Pb+Pb collisions. The effect is not seen in p+p interactions.



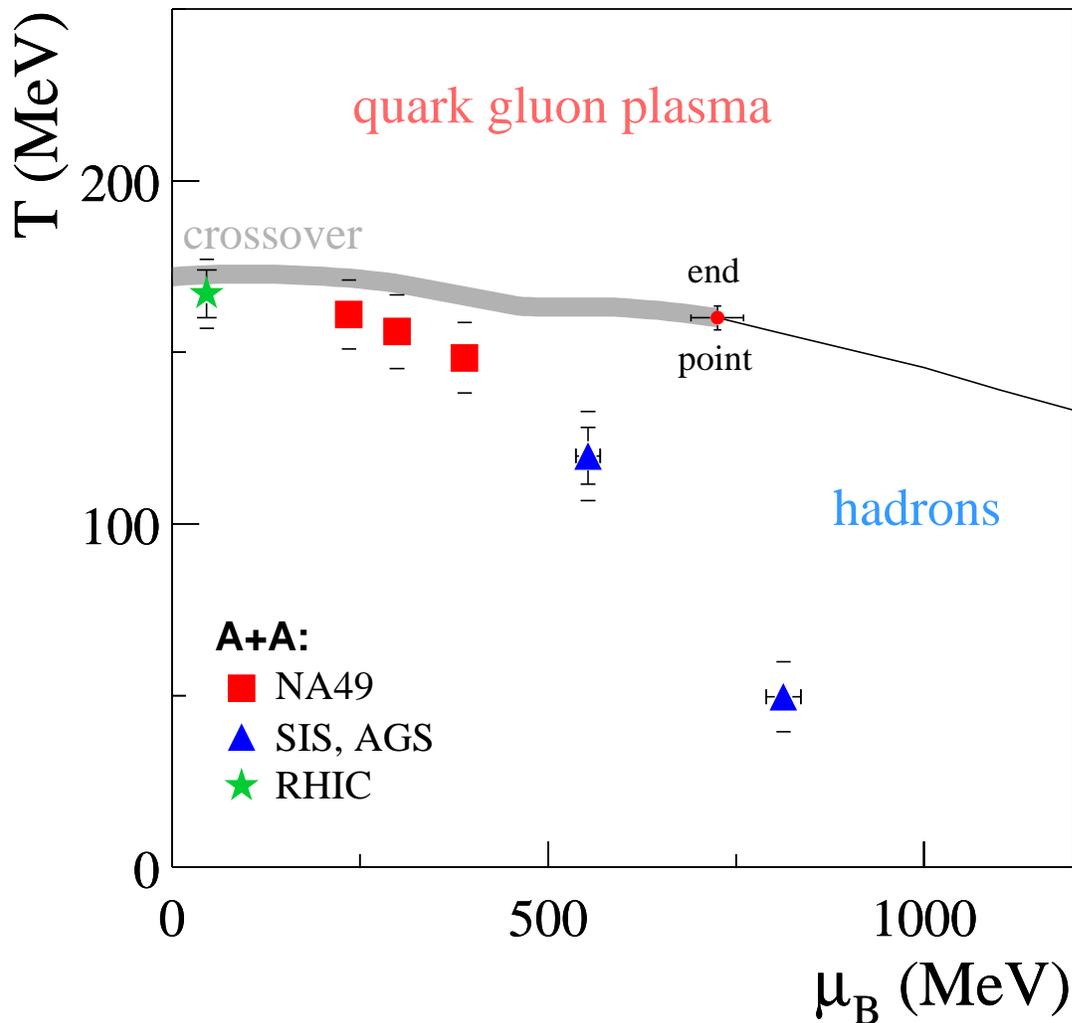
**A Maximum in the Energy Dependence of the
Strangeness to Pion Ratio
in Central Pb+Pb Collisions at Low SPS Energies
May Indicate Onset of Deconfinement**

Within a statistical approach the $\langle K^+ \rangle / \langle \pi^+ \rangle$ is closely related to the strangeness ($s + \bar{s}$) to entropy ratio. At deconfinement one expects a reduction of the mass of strangeness carriers, m_K (hadron gas) \rightarrow m_S (QGP). The steep threshold rise of the ratio characteristic for a hadron gas then settles into saturation at the level expected for QGP. In the transition region (at low SPS energies) a sharp maximum is observed. It is due to lower strangeness to entropy ratio in a hadron gas than in QGP at the deconfinement temperature. The anomalous energy dependence measured for central Pb+Pb collisions is not seen in p+p interactions.



**A Characteristic Plateau in the Energy Dependence
of the Apparent Temperature of Kaons
in Central Pb+Pb Collisions at Low SPS Energies
May Indicate Onset of Deconfinement**

Within a hydrodynamical approach the transverse momentum spectra of kaons are sensitive to the initial temperature and pressure of the created matter. In the mixed phase these are independent of energy density (collision energy), whereas in the pure confined and deconfined phases both increase with the energy. This leads to the observed plateau (at low SPS energies) in the energy dependence of the apparent temperature of kaons, which characterises the shape of the transverse momentum spectrum.



Temperature and Baryo-chemical Potential
Extracted from the Analysis of Hadron Multiplicities
in Central Pb+Pb Collisions
Are Close to Estimated Phase Boundary in the SPS
Energy Range

This Result is Consistent with the Indications (Energy Dependence of Pion and Strangeness Yields as well as Kaon Slopes) that the Onset of Deconfinement is Located at the Low SPS Energy Range.