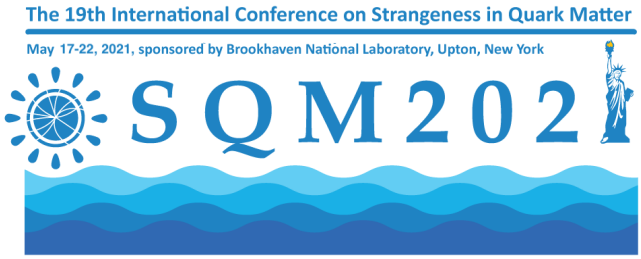

Contribution ID: **207** Type: **Experimental talk**

Do we observe a maximum of the global polarization at HADES energies?

Thursday 20 May 2021 10:50 (20 minutes)

In non-central heavy-ion collisions the orbital angular momentum can reach high values up $10^4\hbar$. This might lead to a global spin polarization of the particles being produced. The STAR results, as measured during the beam energy scan phase I, show an enhancement of the global polarization towards lower beam energies. At a collision energy of $\sqrt{s_{NN}} = 7.7$ GeV a polarization of a few percent has been found. For higher collision energies of $\sqrt{s_{NN}} = 200$ GeV a significant global polarization has still been measured at the per-mille level. At even higher LHC energies of a few TeV the ALICE measurements, despite being consistent with zero, are following the decreasing trend of the global polarization with the collision energy.\\
Several models have been used to describe the trend of the polarization. However, there is very little discussion on how this polarization manifests itself in the low-energy region as measured with HADES.\\
To fuel this discussion from the experimental side, we will present multi-differential results in $p_t - y$ and centrality for the global polarization as measured with HADES. The high statistics Ag+Ag sample measured in 2019 at $\sqrt{s_{NN}} = 2.55$ GeV together with the Au+Au collisions at $\sqrt{s_{NN}} = 2.42$ GeV indicates that the trend measured by STAR continues. The global polarization has been measured by the self-analyzing weak decay of the Λ hyperon. The orientation of the orbital angular momentum is estimated via the reaction plane which is reconstructed from charged spectator fragments measured with the forward wall hodoscope. Furthermore, new results for the directed flow, v_1, of the Λ will be shown and compared to world data.

Collaboration

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