

# Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



Contribution ID: 15

Type: **Poster Presentation**

## Polarization transfer in hyperon decays and its effect in relativistic nuclear collisions

*Monday 4 November 2019 17:40 (20 minutes)*

We study the contribution to the polarization of  $\Lambda$  hyperons in relativistic nuclear collisions at high energy from the decays of  $\Sigma^*$  (1385) and  $\Sigma^0$ , which are the predominant sources of  $\Lambda$  production besides the primary component, as a function of the  $\Lambda$  momentum. Particularly, we determine the longitudinal component of the mean spin vector as a function of the azimuthal angle and show that it has a very similar pattern to the primary one, if primary  $\Sigma^*$  and  $\Sigma^0$  polarization follow the predictions of local thermodynamic equilibrium in a relativistic fluid. Therefore, we conclude that the secondary decays cannot account for the discrepancy between experimental data and hydrodynamic model predictions of the longitudinal polarization of  $\Lambda$  hyperons recently measured by the STAR experiment at RHIC.

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**Session Classification:** Poster Session

**Track Classification:** Chirality, vorticity and spin polarization