XXIV QUARK MATTER
DARMSTADT 2014

Contribution ID: **59** Type: **Poster**

Possible effect of mixed phase and deconfinement upon spin correlations in the $\Lambda\bar{\Lambda}$ pairs generated in relativistic heavy-ion collisions

Tuesday 20 May 2014 16:30 (2 hours)

Spin correlations for the $\Lambda\Lambda$ and
$\Lambda\bar{\Lambda}$ pairs, generated in relativistic heavy ion collisions, and related angular correlations at the joint registration of hadronic decays of two hyperons, in which space parity is not conserved, are theoretically analyzed. The correlation tensor components can be derived from the double angular distribution of products of two decays by the method of "moments" . The properties of the "trace" of the correlation tensor (a sum of three diagonal components), determining the relative fractions of the triplet states and singlet state of
respective pairs, are discussed. Spin correlations for two identical particles ($\Lambda\Lambda$) and two non-identical particles ($\Lambda\bar{\Lambda}$) are considered from the
viewpoint of the conventional model of one-particle sources. In the framework of this model, correlations vanish at sufficiently large relative momenta. However, under these conditions – especially at ultrarelativistic energies – in the case of two non-identical particles (Lambda–anti-Lambda) a noticeable role is played by two-particle annihilation (two-quark, i.e. quark-antiquark, and two-gluon) sources, which lead to the difference of the correlation tensor from zero. In particular, such a situation may arise, when the system passes through the "mixed phase" and – due to the appearance of free quarks and gluons in the process of deconfinement of hadronic matter – the number of two-particle sources strongly increases .

Author: Dr LYUBOSHITZ, Valery (Joint Institute for Nuclear Research, Dubna)

Co-author: Dr LYUBOSHITZ, Vladimir (Joint Institute for Nuclear Research, Dubna)

Presenter: Dr LYUBOSHITZ, Valery (Joint Institute for Nuclear Research, Dubna)

Session Classification: Poster session

Track Classification: Correlations and Fluctuations