

# Heavy-ion collisions and Lambda hyperon polarization

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Heavy ion collisions lead to formation of a relatively new state of matter where quarks and gluons are deconfined - the quark-gluon plasma. The collisions at different energies enable exploration of different regions of the QCD phase diagram. Phase transitions between hadronic phase and the QGP are still not thoroughly explored, especially the critical point, where the phase transition is changed. Furthermore, the resulting fluid from non-central heavy ion collisions may have a strong vortical structure. Recent measurements show that  $\Lambda$  and  $\bar{\Lambda}$  hyperons, produced in Au + Au collisions, have a positive polarization of the order of few percent. This phenomenon is consistent with some hydrodynamic predictions and it opens new direction in the study of the hottest, the least viscous and the most vortical fluid ever observed.

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