



Mercoledì 27 Settembre 2017

Aula Magna del Dipartimento
di Fisica ed Astronomia
ore 15.00

Subatomic vortices

Francesco Becattini

(Università di Firenze)

Abstract: The experiment STAR at the Relativistic Heavy Ion Collider at Brookhaven recently reported (Nature 548, 62-65, 2017) the evidence of a global polarization of Lambda and anti-Lambda hyperons of the order of a percent in the collisions of nuclei at very high energy at finite impact parameter. This effect - which was predicted on the basis of the formation of the QCD plasma at local thermodynamic equilibrium - is a striking confirmation of the fluid nature of the femtometer-scaled system formed in such collisions and, particularly, of its finite vorticity, estimated to be of the order of 10^{21} sec^{-1} . In this respect, polarization is a promising observable to unveil features of the dynamics of the QCD plasma which would be difficult to probe otherwise. In this seminar, I will mostly focus on the theoretical ideas and considerations which have led to the quantitative prediction, the relation with known physics and on possible developments.