



Dipartimento di Fisica  
Università di Cagliari  
INFN, Sezione di Cagliari



# H I G H E N E R G Y P H Y S I C S C O L L O Q U I A

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## POLARIZATION EFFECTS IN HEAVY-ION COLLISIONS

### Abstract

Polarization phenomena in relativistic heavy-ion collisions have been recently the focus of intense research. The large orbital angular momentum in noncentral collisions can be transferred as vorticity to the hot and dense matter created in the collision zone. This, in turn, may align spins of particles along the direction of the global angular momentum leading to a nonzero spin polarization. In this presentation I will focus on polarization mechanisms of relativistic quantum fluids. I will show that medium rotation and particle polarization are intrinsically related. Furthermore, I will summarize some microscopic and macroscopic models which provide a quantitative understanding of such phenomena in the phenomenology of heavy-ion collisions. I will end by outlining issues and open questions in the field which, as of yet, do not have a definite answer.

### External Link:

Presentation room [here](#).

Slides can be found on the INFN HEPC [website](#)  
or at the indico event [link](#) after the seminar.

### Contacts:

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