

# Production asymmetry of $D$ and $\bar{D}$ mesons in the LHCb fixed-target experiments and intrinsic charm in the nucleon

Friday 19 July 2024 11:30 (15 minutes)

We discuss production of  $D$  mesons in  $p-He$  and  $p-Ne$  collisions at the LHCb in the fixed-target mode. We explain how the LHCb data may put constraints on the intrinsic charm (IC) component in the nucleon. We show that there is a possible scenario in which the traditional components are insufficient to describe the LHCb data, especially for backward rapidities and large meson  $p_T$ 's. The IC with probability  $P_{IC}$  less than 1.0% allows to improve description of the data. We also discuss the production asymmetry for  $D$  and  $\bar{D}$ . We show whether it can be explained by a possible asymmetry in the intrinsic  $c$  and  $\bar{c}$  quarks. We include also recombination mechanism that may also generate the asymmetry for  $D$  and  $\bar{D}$ . We show that the scenario with the recombination and the IC components included simultaneously is not excluded by the LHCb data. We also present that our calculations for the asymmetry are in agreement with the experiment.

## Alternate track

### I read the instructions above

Yes

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