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Intrinsic Charm Production in Fixed-Target Experiments at the LHC

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A nonperturbative charm production contribution, known as intrinsic charm, has long been speculated. While it has yet to be satisfactorily proven, there have been recent tantalizing hints. Several experiments, either taking data or planned, could provide definitive evidence in the next few years. Experiments that have taken J/ψ and D meson data include SeaQuest at Fermilab and SMOG at LHCb, see Refs. [1,2] and references therein. Future experiments such as NA60+ are in an energy regime where the intrinsic charm quark signature could be large and unmistakable, as discussed in recent work [3]. These predictions are discussed and compared to previous fixed-target data.

R. Vogt, Limits on Intrinsic Charm Production from the SeaQuest Experiment, *Phys. Rev. C* **103** (2021), 035204.

R. Vogt, Contribution from Intrinsic Charm Production to Fixed-Target Interactions at the LHC, to be submitted.

R. Vogt, Energy dependence of intrinsic charm production: Determining the best energy for observation, *Phys. Rev. C* **106** (2022) 025201.

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Experiment/Theory

Theory/Phenomenology

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