

Detecting Odderon in K0s Regeneration at CERN

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We study detection possibilities of the Odderon interaction in the elastic meson-nucleon scattering, by measuring K0s regeneration at CERN, using the planned HIKE (Phase II) and existing LHCf infrastructures. Basic geometrical requirements and kinematic constraints of such experimental efforts at CERN are considered and the published predictions of the Odderon signatures in K0s regeneration are reviewed. We estimate the expected Odderon influence on $K0L \Rightarrow K0s \rightarrow \text{PiPi}$ decay probability after a distant Pb regenerator, exposed to 1 TeV neutral K0L mesons originating from 13.6 TeV p+p collisions occurring at the ATLAS interaction point. A possibility of the Odderon detection in diffractive K0s regeneration events, using 50 GeV K0L beam within HIKE project at CERN, is also discussed.

Alternate track

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