

# 4th International Conference on the Initial Stages in High-Energy Nuclear Collisions



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## Elliptic flow from color-dipole orientation in pp and pA collisions

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For ultrarelativistic proton-proton and proton-nucleus collisions, we perform an exploratory study of the contribution to the elliptic flow  $v_2$  coming from the orientation of the momentum of the produced particles with respect to the reaction plane. Via the CGC factorization valid at high energies, this contribution is related to the orientation of a color dipole with respect to its impact parameter, which in turn probes the transverse inhomogeneity in the target. We show that the angular dependence is controlled by soft gluon exchanges and hence is genuinely non-perturbative. The effects of multiple scattering turn out to be essential (in particular, they change the sign of  $v_2$ ). We show that sizable values for  $v_2$ , comparable to those observed in the LHC data and having a similar dependence upon the transverse momenta of the produced particles, can be easily generated via peripheral collisions. In particular,  $v_2$  develops a peak at a transverse momentum which scales with the saturation momentum in the target.

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**Primary authors:** IANCU, Edmond (CEA/IRFU,Centre d'étude de Saclay Gif-sur-Yvette (FR)); REZAEIAN, Amir (Universidad Tecnica Federico Santa Maria)

**Presenter:** REZAEIAN, Amir (Universidad Tecnica Federico Santa Maria)

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