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Observation of prompt J/psi meson elliptic flow in high-multiplicity pPb collisions at root s(NN)=8.16 TeV

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Abstract

A measurement of the elliptic flow $v(2)$ of prompt J/psi mesons in high-multiplicity pPb collisions is reported using data collected by the CMS experiment at a nucleon-nucleon center-of-mass energy $\sqrt{s(NN)} = 8.16$ TeV. Prompt J/psi mesons decaying into two muons are reconstructed in the rapidity region in the nucleon-nucleon center-of-mass frame $(y(cm))$, corresponding to either $-2.86 < y(cm) < -1.86$ or $0.94 < y(cm) < 1.94$. The average $v(2)$ result from the two rapidity ranges is reported over the transverse momentum $(p(T))$ range from 0.2 to 10 GeV. Positive $v(2)$ values are observed for the prompt J/psi meson, as extracted from long-range two-particle correlations with charged hadrons, for $2 < p(T) < 8$ GeV. The prompt J/psi results are compared with previous CMS measurements of elliptic flow for open charm mesons (D-0) and strange hadrons. From these measurements, constraints can be obtained on the collective dynamics of charm quarks produced in high-multiplicity events arising from small systems. (c) 2019 The Author(s). Published by Elsevier B.V.

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