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**Strange hadron production in pp and pPb collisions at root(NN)-N-s=5.02 TeV**

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## PHYSICAL REVIEW C

Volume: 101 Issue: 6

Article Number: 064906

DOI: 10.1103/PhysRevC.101.064906

Published: JUN 22 2020

Document Type: Article

View Journal Impact

## Abstract

The transverse momentum ( $p_T$ ) distributions of Lambda, Xi(-), and Omega(-) baryons, their antiparticles, and K-S(0) mesons are measured in proton-proton (pp) and proton-lead (pPb) collisions at a nucleon-nucleon center-of-mass energy of 5.02 TeV over a broad rapidity range. The data, corresponding to integrated luminosities of 40.2 nb(-1) and 15.6 mu b(-1) for pp and pPb collisions, respectively, were collected by the CMS experiment. The nuclear modification factor R-pPb, which is defined as the ratio of the particle yield in pPb collisions and a scaled pp reference, is measured for each particle. A strong dependence on particle species is observed in the  $p_T$  range from 2 to 7 GeV, where R-pPb for K-S(0) is consistent with unity, while an enhancement ordered by strangeness content and/or particle mass is observed for the three baryons. In pPb collisions, the strange hadron production is asymmetric about the nucleon-nucleon center-of-mass rapidity. Enhancements, which depend on the particle type, are observed in the direction of the Pb beam. The results are compared with predictions from EPOS LHC, which includes parametrized radial flow. The model is in qualitative agreement with the R-pPb data, but fails to describe the dependence on particle species in the yield asymmetries measured away from midrapidity in pPb collisions.

## Keywords

KeyWords Plus: TRANSVERSE-MOMENTUM; PARTICLE-PRODUCTION; CENTRALITY DEPENDENCE; NUCLEAR MODIFICATION; RAPIDITY DEPENDENCE; ROOT-S(NN)=200 GEV; D+AU COLLISIONS; JET PRODUCTION; PB COLLISIONS; MULTIPLICITY

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