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Quarkonia production in pPb and PbPb collisions at LHCb

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We present LHCb results on quarkonia production in proton-lead collisions, using the data collected at 5.02 and 8.16 TeV nucleon-nucleon centre-of-mass energies, covering forward (pPb configuration) and backward (Pbp configuration) rapidities. Measurements include charmonia, where the prompt and from-b-decay components are disentangled, and bottomonia states. The large increase in size of the heavy flavour sample collected at 8.16 TeV with respect to the 5.02 TeV sample allows a remarkable improvement in the accuracy of the studies of nuclear matter effects. Coherent production of J/Psi in PbPb collisions are also presented.

The largely unknown parton distribution functions of nuclei and the similarities observed between high-multiplicity pp and pPb events compared to PbPb, often described by means of hydrodynamic models, are the main motivations for an extended pPb data taking program during LHC Run 3 and Run 4. The future increase in luminosity combined with LHCb's unique detector capabilities will allow new and precise measurements to be performed. Prospects will be presented on Drell-Yan production down to 5 GeV, DDbar correlations, and fully reconstructed b hadrons.

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