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and LHC energies

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(Submitted on 18 Jun 2011)

High Energy Physics - Phenomenology

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The energy dependence of charged-hadron production in proton-proton collisions at RHIC and LHC energies is investigated in a nonequilibrium-statistical relativistic diffusion model (RDM) with three sources for particle production. Calculated charged-hadron pseudorapidity distributions for pp at RHIC energies of sqrt(s) = 0.2 and 0.41 TeV, and at LHC energies of 0.9, 2.36 and 7 TeV are optimized with respect to the available data. Predictions for 14 TeV are made. The central source arising from gluon-gluon collisions becomes the major origin of particle production at LHC energies. The midrapidity dip is essentially determined by the interplay of the three sources.

Pseudorapidity distributions of produced

charged hadrons in pp collisions at RHIC

Comments:6 pages, 5 figures, 1 tableSubjects:High Energy Physics - Phenomenology (hep-ph); Nuclear Theory (nucl-th)Journal reference:EPL 95, 61001 (2011)Cite as:arXiv:1106.3636 [hep-ph]
(or arXiv:1106.3636v1 [hep-ph] for this version)

Submission history

From: Georg Wolschin [view email] [v1] Sat, 18 Jun 2011 10:39:07 GMT (301kb,D)

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