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High baryon densities achievable at RHIC and LHC

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In high energy collisions nuclei are practically transparent to each other but produce very hot, nearly baryon-free, matter in the central rapidity region. Where do the baryons go? We calculate the energy loss of the nuclei using the color glass condensate model. Using a space-time picture of the collision we calculate the baryon and energy densities of the receding baryonic fireballs. For central collisions of large nuclei at RHIC and LHC we find baryon densities more than ten times that of atomic nuclei over a large volume which appear at high rapidities. These results can and are being used as initial conditions for subsequent hydrodynamic evolution and could test the equation of state of matter at very high baryon densities.

Content type

Theory

Collaboration

Centralised submission by Collaboration

Presenter name already specified

Primary authors: Prof. KAPUSTA, Joseph (University of Minnesota); LI, Ming (University of Minnesota, Twin Cities)

Presenter: Prof. KAPUSTA, Joseph (University of Minnesota)

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