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Charged particle transverse momentum spectra measured at mid-rapidity by STAR in the RHIC Beam Energy Scan

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Quenching of high transverse momentum (p_T) charged hadrons can be measured by the nuclear modification factor, which compares binary collision-scaled p_T spectra from central heavy-ion collisions to a reference spectrum, either proton-proton (R_{AA}) or peripheral heavy-ion collisions (R_{CP}), by taking their ratio. At $\sqrt{s_{NN}} \geq 62.4$ GeV the nuclear modification factor at high p_T is observed to be suppressed, i.e. less than unity, which is consistent with quenching. Measurements by STAR of charged hadron $R_{CP}(\sqrt{s_{NN}}, p_T)$ for $\sqrt{s_{NN}} = 7.7 - 200$ GeV show a smooth transition from strong enhancement of high p_T charged hadrons at $\sqrt{s_{NN}} = 7.7$ GeV to strong suppression at $\sqrt{s_{NN}} = 200$ GeV. These data will be compared with the event generators UrQMD, HIJING and AMPT. RHIC's broad range of collision systems and energies allow us to test the assumptions of the event generators; facilitating the investigation of the relative contributions from processes that lead to suppression and enhancement in heavy-ion collisions as a function of $\sqrt{s_{NN}}$.

On behalf of collaboration:

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