

Quantum entanglement in relativistic particle collisions

I will discuss the potential connection between the entanglement entropy of the initial state and thermodynamic entropy of the final state in relativistic particle collisions, from proton-proton to heavy ion collisions. I will show that simple fragmentation models that ignore quantum mechanical effects break down in describing particle production and that evidence for the non-universality of heavy quark fragmentation in hadron collisions shows the impact of the initial entanglement. In heavy ion processes entanglement might also give rise to a seemingly thermal behavior and thus can be linked to the entropy and particle yields in the final state.

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