Contribution ID: 97

## Quantum entanglement in relativistic particle collisions

Friday 29 July 2022 11:50 (25 minutes)

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.

**Presenter:** BELLWIED, Rene (University of Houston (US))

Session Classification: Session