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Heavy ion Collisions and Critical Dynamics

In this talk, I will present the basic models used to understand the dynamics of an ultrarelativistic heavy ion collision.
After the collision of the two nuclei, accelerating at relativistic energy,
the system rapidly local equilibrate and subsequently expand according
to the generic law of relativistic hydrodynamics.
After the system's cooling due to its rapid expansion, the hadrons are produced and stop interacting until they are detected.
The overall experimental pictures are consistent with the hydrodynamic model. However, some discrepancy regarding pion production at low transverse momenta could indicate that this soft pion could be produced due to the non-equilibrium effects of the dynamics of chiral phase transition.

based on:
arXiv:2306.06887
arXiv:2111.03640
arXiv:2101.10847

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