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Initial State and Hydrodynamic Models for Particle Production from the Little Bangs

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The understanding of the initial state and its fluctuations in heavy-ion collision experiments is of great importance for determining properties of the created system from the produced particle distributions. One example is the shear-viscosity to entropy density ratio of the quark-gluon plasma, which can be constrained by studying moments of azimuthal particle distributions and comparing to theoretical models. I will review recent developments in the theoretical description of particle production in heavy-ion collisions, focusing on models for the fluctuating initial state and event-by-event hydrodynamic evolution.