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A Brief Review on Possibility of Smallest Collisions at the Large Hadron Collider Probing the Signals from Early Universe

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Abstract: The little bangs of heavy-ions made in collider experiments like Large Hadron Collider (LHC) reproduce the conditions happened during the fraction of a second after the Big-Bang. Recent measurements of high multiplicity proton-proton collisions at LHC energies have revealed that these systems exhibit features similar to quark-gluon plasma, traditionally believed to be only achievable in heavy nucleus-nucleus collisions at ultra-relativistic energy. To pinpoint the origin of these phenomena and to bring all collision systems in equal footings, several event shape observables have been used extensively in experiments as well as in the phenomenological front. In this contribution, a brief review on the QGP signatures and QGP-like effects in small systems in shown. Two of the key event shape observables are also highlighted which could shed light in understanding the QGP- like effects in small systems.