

Recommendations from the 2nd WG3 meeting

The 2nd WG3 meeting was held at the Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, in August 13th-15th 2018. It was attended by 20 participants and consisted of 11 talks (see <http://benasque.org/2018cost/cgi-bin/participants.pl>). Two main topics were addressed:

- Azimuthal correlations observed in small systems, pp and pA. There were several presentations on their possible microscopic origin in realisations of QCD (CGC and others) that take into account quantum interference in particle production (particularly the computation of odd harmonics and of many particle correlations in pA collisions, and the effects of high-energy evolution). There were also some presentations on the explanation in macroscopic (hydrodynamic) approaches, addressing the long pseudorapidity nature of the required initial conditions for hydrodynamical evolution and the femptoscopic signals of such correlations. Finally, there was a presentation on the different regularities that are present in data from the RHIC energy scan.
- The emergence of the macroscopic behaviour from the microscopic dynamics. There were two talks on this subject, one on entanglement in expanding systems, and the other on a strong coupling realisation of hadronic collisions in an AdS/QCD model that realises a 1st order phase transition.

The big questions that remain open in the field, both addressed in this workshop, are establishing (i) the mechanism for the emergence of macroscopic characteristics in small systems - the treatment of the far-from-equilibrium dynamics that leads to such emergence, whether strong coupling or weak coupling, and (ii) the relevance of initial state versus final state effects.

The workshop illustrates the ways to attack this problem: the simultaneous investigation of initial and final state explanations, and of weak and strong coupling mechanisms for the emergence, with the proposal of observables that could eventually discriminate all these approaches. Concerning the former, multiplicity cuts could help to disentangle one from the other.