What are BEC really measuring?

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Bose-Einstein correlations (BEC) observed between identical bosons produced in high energy multiparticle collisions are regarded as very important source of information concerning the space-time structure of multiparticle production processes, especially those proceeding in heavy ion collisions (because their possible connection with the production of the Quark-Gluon state of matter). We demonstrate (by means of a simple Monte Carlo calculations) that BEC originate because of the correlations of fluctuations existing in every hadronizing source and are therefore at first instance sensitive to the population of the elementary emitting cells and their number and providing information on space-time distributions of *pairs of particles* rather than on the source itself (actually this point has been stressed in the literature since a long time ago but here we can provide its convincing numerical illustration). We show that such approach allows for a simple modelling of BEC in numerical event generators used to describe the multiparticle production processes at high energy collisions.

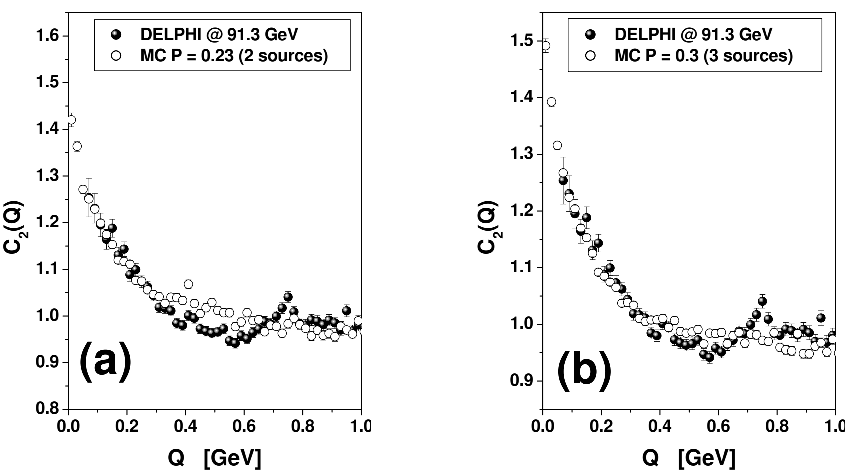

Figure 1: Examples of comparison with e^+e^- annihilation data using a simple cascade model (with 2 or 3 sources) endowed with the proposed algorithm.

References

[1] O.V.Utyuzh, G.Wilk and Z.Włodarczyk, *Phys. Lett.* **B522** (2001) 273.