builds up with time, can be interpreted as a particle emission source with a space-time distribution that is determined by the preceding parton evolution. This notion allows us to directly relate the dynamics of cluster formation to the well-known Bose-Einstein effect [48], which corresponds to an enhancement in the production rate of identical bosons (in our case mainly pions) emitted from similar regions in space and time, arising from the imposition of Bose symmetry. Enhancements in the mass spectrum of *same-sign* pion pairs have been seen clearly in e^+e^--data (for a review see e.g. [44]). Let us briefly recall that the Bose symmetry imposed on the production amplitude of identical particles from a distribution of sources leads to an interference term in the squared amplitude which is only observable if the sources are incoherent. From the analysis of e^+e^--data one finds [44] that the Bose-Einstein effect is reasonably described by a spherically-symmetric space-time distribution of sources with Gaussian form

$$\rho(r) \;=\; \rho(0)\;\exp\left(-\frac{r^2}{2\sigma_\rho^2}\right)\;, \tag{89}$$

where σ_ρ is a radius parameter. Such a source leads to an enhancement due to interference caused by the identical-particle effect, relative to the rate with no interference,

$$b(q) \;=\; 1 \;+\; \lambda_\rho\;\exp\left(-\sigma_\rho^2\,q^2\right)\;, \tag{90}$$

where $q^2 = m_{\pi\pi}^2 - 4m_\pi^2$, and $m_{\pi\pi} = \sqrt{(p_1+p_2)^2}$ is the invariant mass of the emitted pion pair. The degree of incoherence of the source is measured by λ_ρ (=1 for complete incoherence, and =0 for complete coherence), σ_ρ measures the source size in fm, or alternatively, σ_ρ^{-1} measures the range of enhancement with respect to q in GeV.

To observe an enhancement in q amongst identical particles, one must compare the particle distributions with corresponding spectra in the complete absence of Bose symmetry. Thus, in order to get an estimate of the magnitude of enhancement implied by our hadronization picture, we proceed as follows. First we evaluate the pion distributions resulting from a simulation which does not include the Bose-Einstein effect. Then we repeat the calculation, but now imposing Bose symmetrization on same-sign pion pairs by assuming complete incoherence, corresponding to $\lambda_\rho = 1$. Here we use the method of Sjöstrand [49], which simulates the enhancement due to the identical-particle effect. Finally, we compute the ratio $b(q)$ of the pion distributions of same-sign pairs with Bose symmetrization