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## Jet Mass Dependent Fragmentation

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1. Microcanonical statistical jet-fragmentation model is presented
2. Arguments are enumerated supporting the usage of the Jet Mass as fragmentation scale
3. fits to ep and pp data are presented
4. DGLAP evolution is discussed
5. applications in pp and AA collisions (hadron spectra,  $v_2$ ) are discussed

### Summary

We propose the characterization of fragmentation functions by the energy fraction  $\tilde{x}$ , a hadron takes away from the energy of the jet measured *in the frame co-moving with the jet*. Besides, we propose the usage of the *jet mass as the fragmentation scale*  $\tilde{Q}$ . We show that these two Lorentz-invariant variables emerge naturally in a microcanonical ensemble with conserved fourmomentum. Then, we construct a statistical hadronization model, in which, two features of the hadronic final states in various high-energy reactions (power law spectra and negative-binomial multiplicity distributions) can be connected simply. Finally, we analyze the scale dependence of the parameters of the model (power of the spectrum and mean energy per hadron) in the  $\phi^3$  theory. Fitting fragmentation functions in diffractive positron-proton and proton-proton collisions, we obtain a prediction for the jet mass dependence of the hadron multiplicity distribution inside jets.

Refs.: arXiv:1606.03208, arXiv:1605.06876

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