

MULTIPLICITY DISTRIBUTIONS IN INTERACTION MODELS
USED FOR CASCADE SIMULATIONS

by

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In cascade simulations, conservation of energy is of paramount importance. We point out that it is possible to construct algorithms in which energies of secondaries are chosen from physically correct distributions in such a way as to conserve energy, and give physically correct multiplicity distributions without further adjustment. The resulting non-Poissonian nature of the distribution and the approximate KNO^k scaling are related to the large fluctuations in the energy available for pion production and to the detailed shape of the inclusive momentum distribution.

We describe two multiparticle production algorithms which have these features. One is the algorithm used in the simulation of C-jets^λ; the other is for a hadron-nucleus interaction model used in the calculation of muon and neutrino fluxes^{λ,4}.

References

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