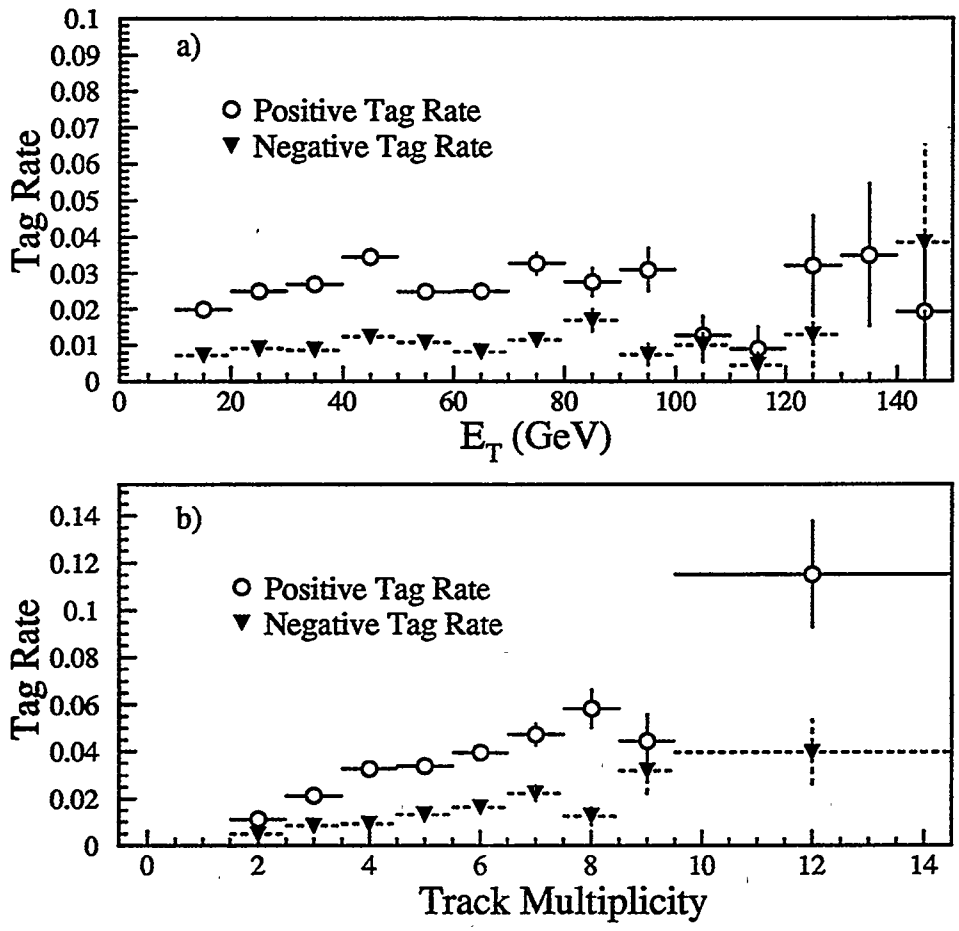

Figure 10: The rate of SVX tags as a function of the transverse energy of the jet and the charged track multiplicity in the jet, as measured using the inclusive jet sample. Tag rates for both positive and negative decay length vertices are shown.

a powerful way of identifying $t\bar{t}$ candidate events.

7.2.2 Soft Lepton Tagging

The CDF collaboration developed the original lepton-tagging techniques to search for $t\bar{t}$ production [23], requiring the presence of a muon candidate in proximity to one of the jets. The collaboration has enhanced these techniques by extending the acceptance of the muon system and by also searching for electron candidates associated with a jet cluster. In both cases, it is optimal to allow for relatively low energy leptons (down to P_T's as low as 2 GeV/c), so that this technique has become known as "soft lepton tagging." A candidate jet cluster with a soft lepton candidate is considered to be SLT tagged.

The efficiency of this tagging technique depends on the ability to identify leptons in the presence of additional hadrons that come from the fragmentation of the b quark and the decay of the resulting c quark system. Muons are identified by