# **Stop Fat Jets**

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1

### Selections

- Loop through events where there is at least 1 W that decays hadronically and 1 leptonically
- Filter to get quality jets
  - pt > 40
  - |eta| < 2.5
  - o passesLoosePFJetID()
- Quarks have same pt and eta requirement as jets
  - status=3

## **Quark-Jet Matching**

- Find 2 jets with minimum deltaR to the 2 quarks
  - if the 2 jets happen to be the same, call it a "lonely" jet
- Now make the requirement that jet-quark deltaR < 0.2</li>
  - if we end up with 2 distinct
    jets, continue on to
    plot/calculate



#### dR between qq (no matching at this point)



### Fraction of qq (no match) with $\Delta R_{ii} < k$







### Conclusions

 Neglecting radiated jets, we would expect the blue curve in the previous slide to decrease (at higher masses, jets merge: 4 → 3), but it appears that I/FSR compensates for the lost jet

## **Next Steps**

- Look at these same plots in different MT bins
- Look into substructure of jets (AK4 vs AK8 collections)
  - Can explore T1tttt samples which have AK8 information to get acquainted with substructure variables
  - Alex will make some events for T2tt which will then be put through a modified CMS3 maker that has AK8 collection storing capabilities