

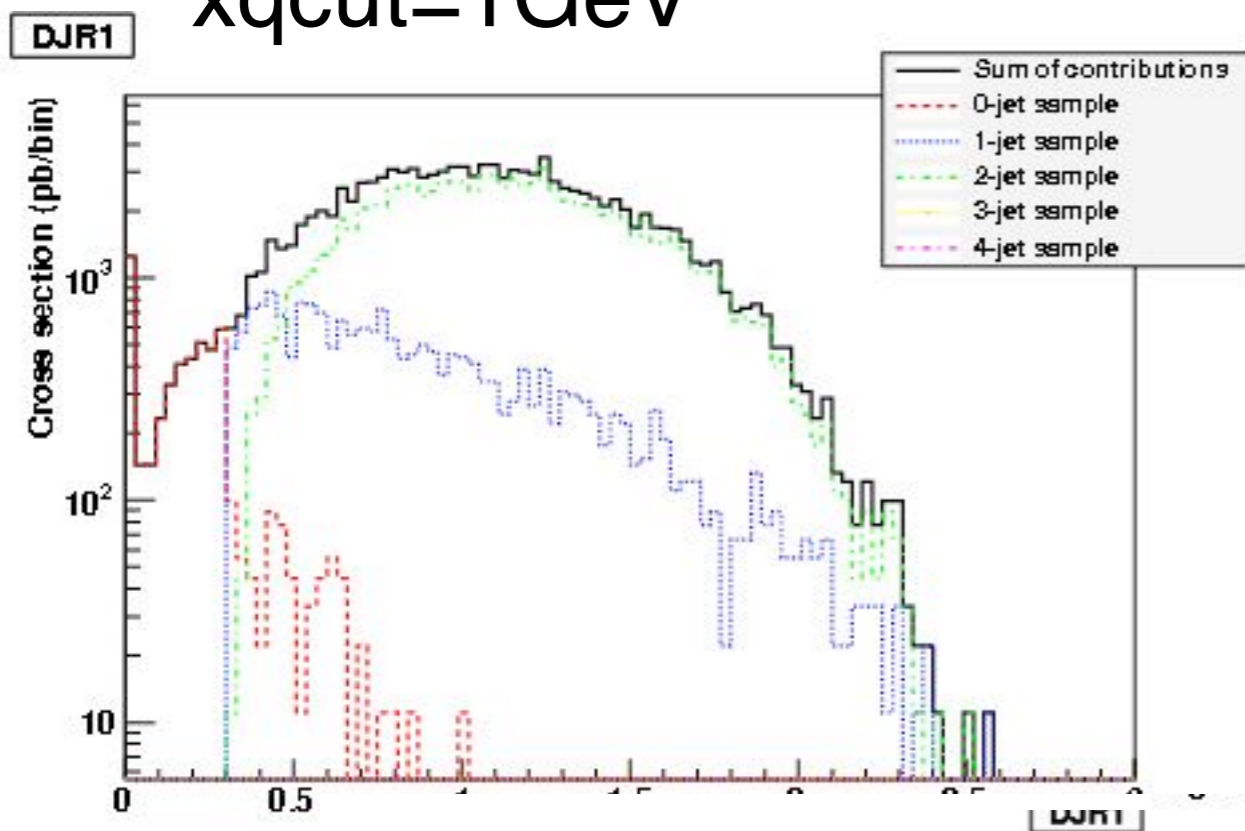
1. Generate $p p \rightarrow w^+$ with 0 jets, 0,1 jets and 0,1,2 jets
 (Each on different computers - use the most powerful computer for 0,1,2 jets)
 - a. Generate 20,000 events for a couple of different x_{qcut} values.
 - b. Compare the distributions (before and after Pythia) and cross sections (before and after Pythia) between the different processes, and between the different x_{qcut} values.
 - c. Summarize: How many jets do we need to simulate? What is a good x_{qcut} value? How are the distributions affected?
2. Do the same exercise for matched squark production
 ($p p \rightarrow u\bar{u} + 0,1$ jets)
 - a. Run with and without “\$ go” - how does the result change?
 - b. With “\$ go”, do the exercises a.-c. under 1. What is a good choice for matching scale?

- Generate matched/merged sample for $t\bar{t}$
- Generate matched/merged sample for your BSM model

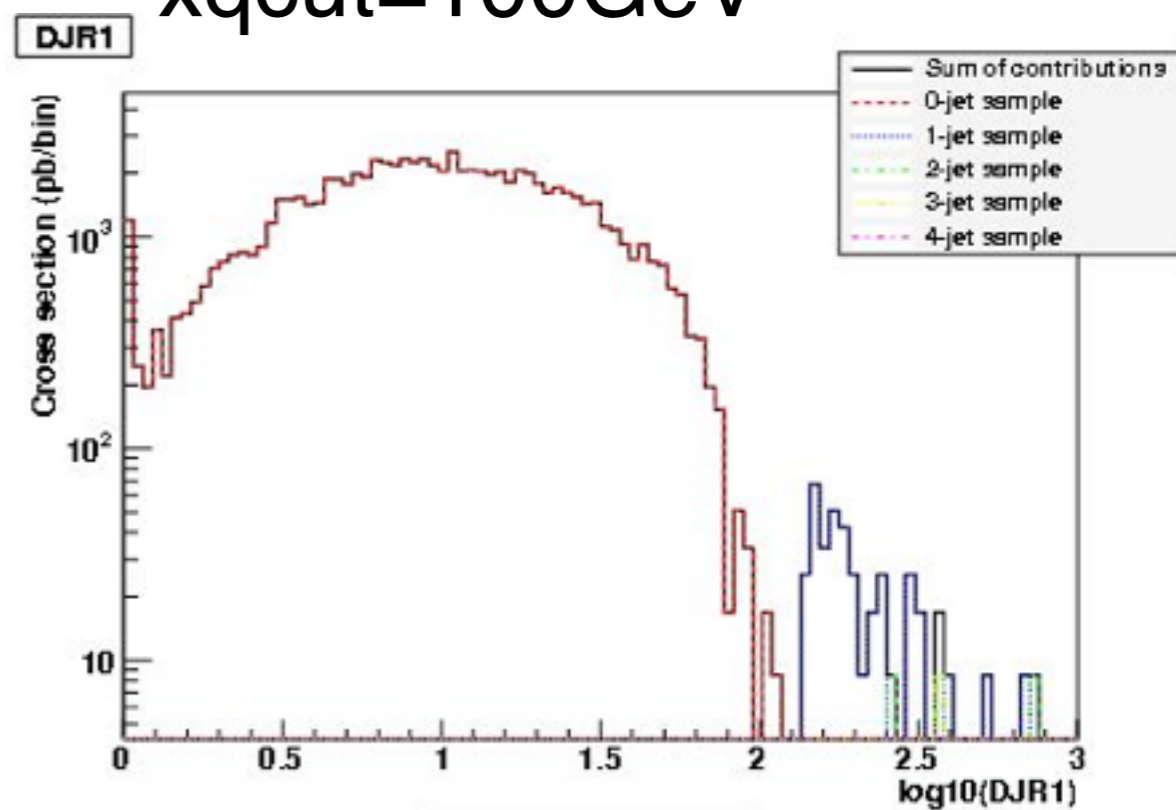
| | w+0j | w+1j | w+2j | w+3j |
|-------------|----------|----------|---------|---------|
| no matching | 8.35E+04 | 1.58E+04 | 8.7E+03 | 3.5E+03 |

| | 1GeV | 10GeV | 20GeV | 50GeV | 100GeV | 500GeV |
|---------|----------|----------|----------|----------|----------|----------|
| w+0 | 8.35E+04 | 8.35E+04 | 8.35E+04 | 8.35E+04 | 8.35E+04 | 8.35E+04 |
| 0+1 | 1.07E+05 | 9.09E+04 | 8.91E+04 | 8.61E+04 | 8.40E+04 | 8.35E+04 |
| 0+1+2 | 1.12E+05 | 9.29E+04 | 9.03E+04 | 8.66E+04 | 8.44E+04 | 8.35E+04 |
| 0+1+2+3 | 1.20E+05 | 9.47E+04 | 9.07E+04 | 8.68E+04 | 8.40E+04 | 8.35E+04 |

xqcut=1 GeV



xqcut=100 GeV



xqcut=20 GeV
smooth transition

