

Model independent
measurement discussion points

For the following proposals, discuss

1. any model dependence they introduce
2. how concerning/severe that might be
3. how you might mitigate it

1. I want to measure di-electron (Drell-Yan) production inclusively in pp collisions. My electromagnetic calorimeter has an insensitive area at $0.1 > \phi > -0.1$, and I would like to extrapolate over this using simulation to produce a more inclusive measurement.
2. In the same measurement I would like to unfold to “born” electrons
3. In the same measurement I would like to subtract the background from WW and tt events.
4. In the same measurement I have a fiducial phase space defined by cuts on the electrons at $p_T > 10$ GeV and $|y| < 2$, because of acceptance of the trigger, tracking and EM calorimeter. I would like to extrapolate to the full phase space.
5. Would (4) be a better or worse thing to do if measuring di-electrons at LEP? What about dimuons?

1. I want to measure WW production in pp collisions at the LHC. I want to use leptonic events, but measure the total cross section, so would like to correct for the leptonic W branch ratio
2. In the same measurement I define a fiducial phase space using a selection cut on missing energy at 20 GeV, as well as on the p_T of and y of the leptons $p_T > 10$ GeV and $|y| < 2$. The muon detector has a few percent inefficiency depending upon the layout of the material in front of it. I want to correct for that.
3. The missing energy trigger has a turn-on curve which means it is 95% efficient at 20 GeV, only reaching 100% at 30 GeV. I want to correct for this.
4. In the same measurement I am not interested in Ws from tops, so I want to subtract them.
5. I am actually keen on vector-boson scattering, so I want to correct back to just this process
6. I want to be inclusive so I want to correct from the fiducial phase space to the full phase space