Measuring Masses in Cascade Decays With the Help of Many-Body Phase Space

With only a Standard Model-like Higgs boson and no obvious signs of physics beyond the Standard Model yet, we are approaching a road block. If the new physics is within the reach of the LHC, it will probably provide limited statistics. The problem is exacerbated for the proposed invisible particles escaping detection such as the lightest neutralino in R-parity conserving MSSM. We will discuss how the simultaneous measurement of the masses of the new states can be done more effectively than the common kinematic variables by using the intriguing properties of the many body phase space.