Abstract Submitted
for the NWS12 Meeting of
The American Physical Society

Bring the Higgs to Rest JACOBUS VAN NIEUWKOOP, Simon Fraser University, ATLAS COLLABORATION — In the Standard Model of Physics, the Higgs boson can decay to a pair of W bosons which decay leptonically. At ATLAS, we have developed a discriminator that classifies events as signal-like or background-like based on their kinematics. This discriminator requires the calculation of the matrix element (derived from Feynman rules) for both signal and background hypotheses. One assumption that we made is that the Higgs is at rest in the transverse plane of the detector. However, this is often not the case due to next-to-leading order effects like initial state radiation. In order to improve our sensitivity we attempt to boost the Higgs into its transverse rest frame. Since the neutrinos pass through ATLAS undetected, we do not have direct access to the Higgs 4-momenta. My talk will describe how we used multivariate techniques to estimate the transverse momentum of the Higgs.

Jacobus van Nieuwkoop
Simon Fraser University

Date submitted: 14 Sep 2012 Electronic form version 1.4