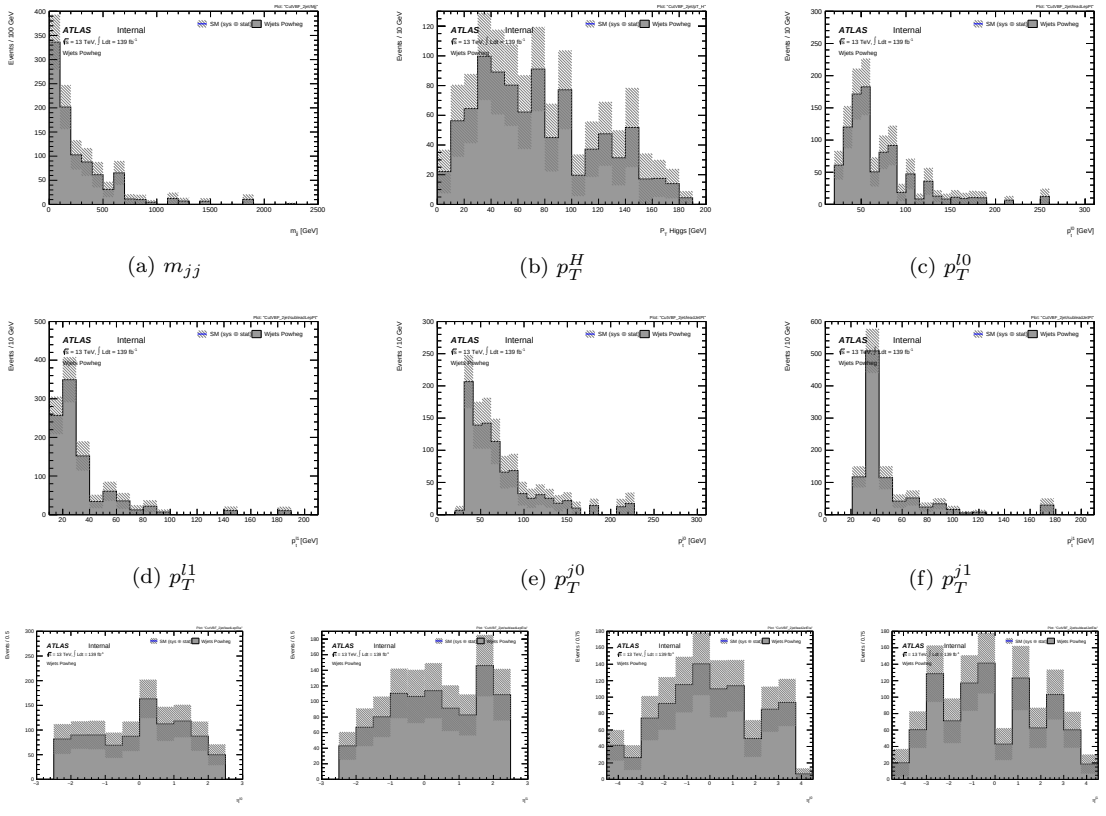
1 Fake closure tests

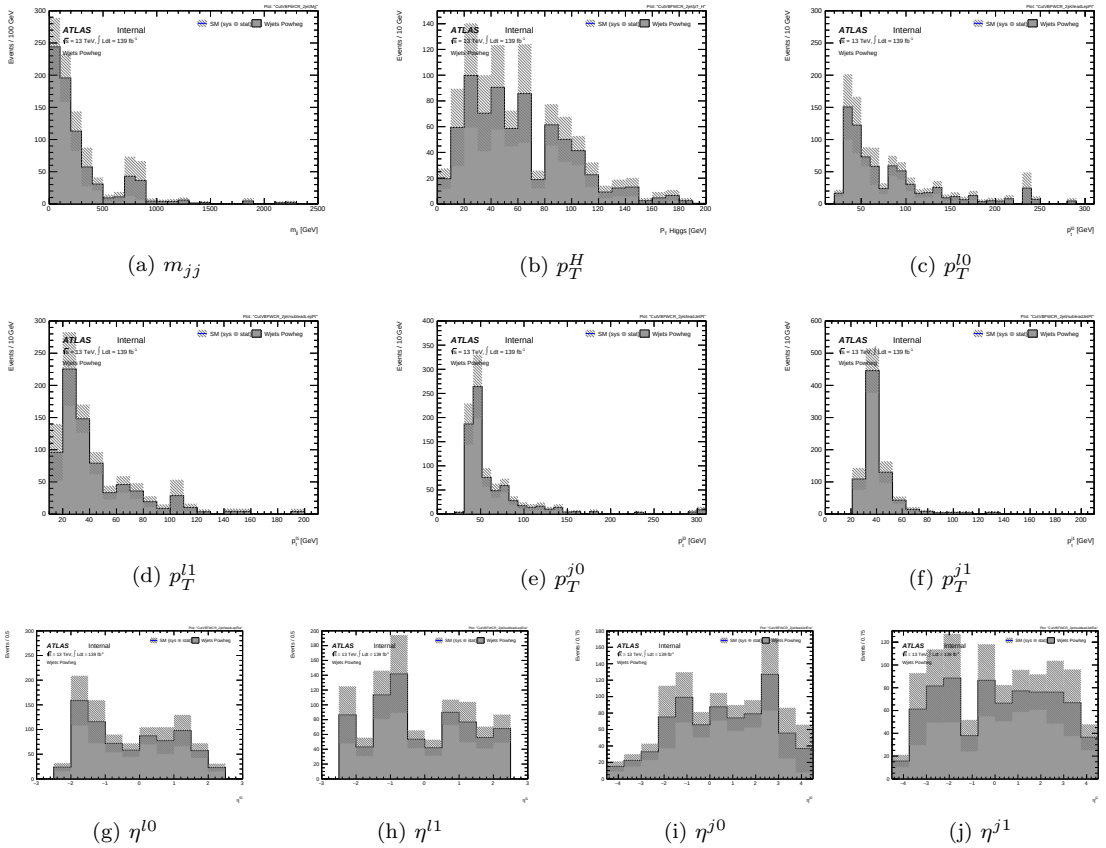


(a) m_{jj} (b) p_T^H (c) p_T^{l0}

(d) p_T^{l1} (e) p_T^{j0} (f) p_T^{j1}

(g) η^{l0} (h) η^{l1} (i) η^{j0} (j) η^{j1}

Figure 1: Distributions after preselection and 2-jets cuts for W+jets MC samples in the signal region (id-id).

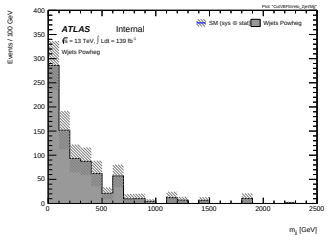


(a) m_{jj} (b) p_T^H (c) p_T^{l0}

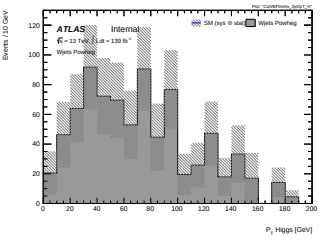
(d) p_T^{l1} (e) p_T^{j0} (f) p_T^{j1}

(g) η^{l0} (h) η^{l1} (i) η^{j0} (j) η^{j1}

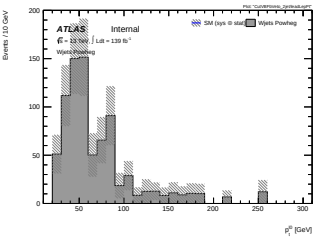
Figure 2: Distributions after preselection, FF and 2-jets cuts for W+jets MC samples in the W+jets control region (id-anti-id).



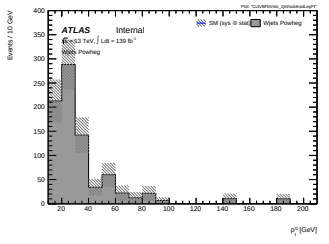
(a) m_{jj}



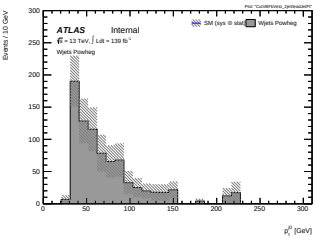
(b) p_T^H



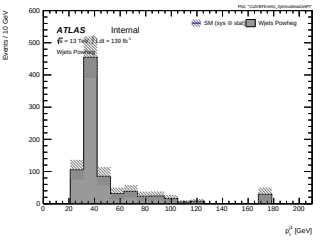
(c) p_T^{l0}



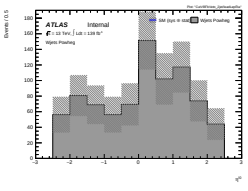
(d) p_T^{l1}



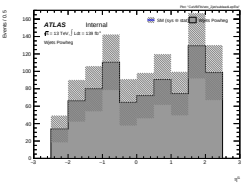
(e) p_T^{j0}



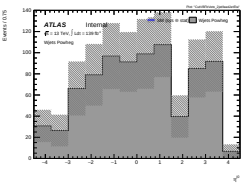
(f) p_T^{j1}



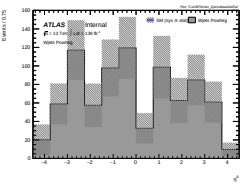
(g) η^{l0}



(h) η^{l1}

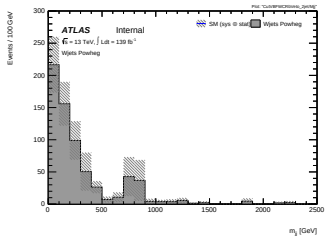


(i) η^{j0}

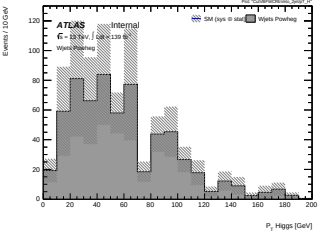


(j) η^{j1}

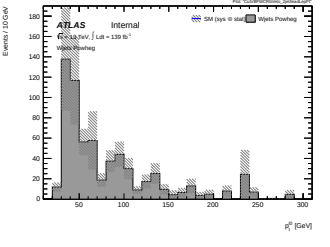
Figure 3: Distributions after preselection, 2-jets and b-veto cuts for W+jets MC samples in the signal region (id-id).



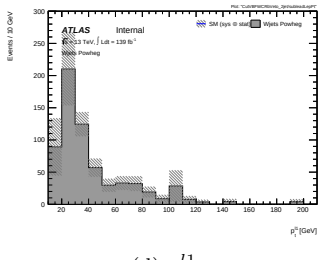
(a) m_{jj}



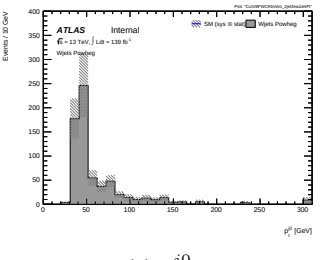
(b) p_T^H



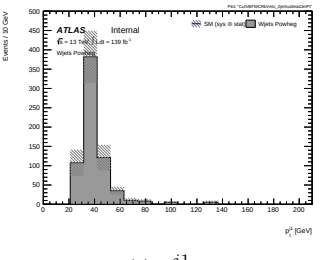
(c) p_T^{l0}



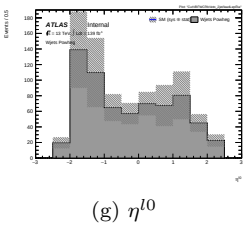
(d) p_T^{l1}



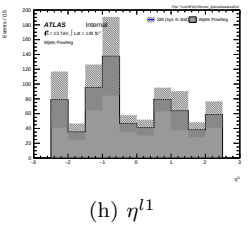
(e) p_T^{j0}



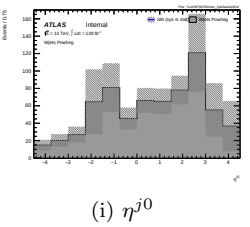
(f) p_T^{j1}



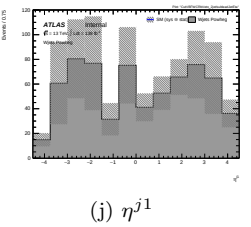
(g) η^{l0}



(h) η^{l1}

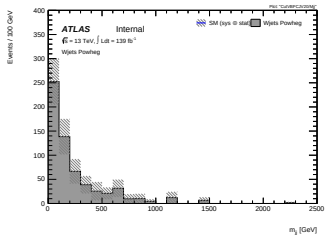


(i) η^{j0}

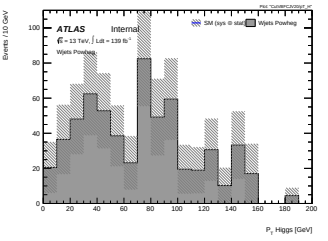


(j) η^{j1}

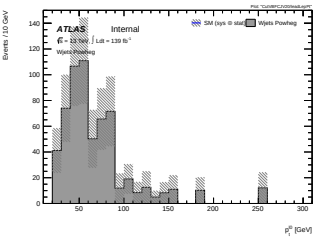
Figure 4: Distributions after preselection, FFs, 2-jets, and b-veto cuts for W+jets MC samples in the W+jets control region (id-anti-id).



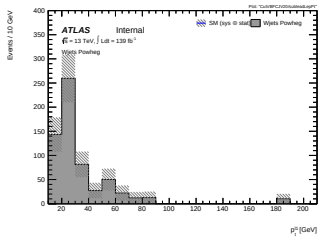
(a) m_{jj}



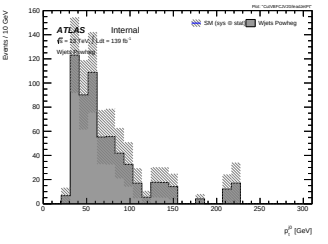
(b) p_T^H



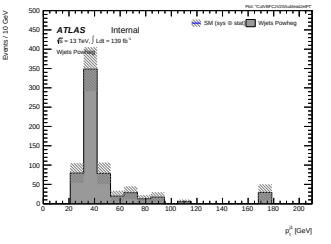
(c) p_T^{l0}



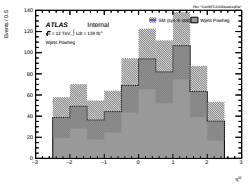
(d) p_T^{l1}



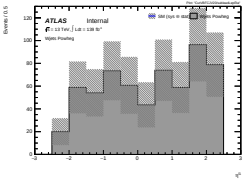
(e) p_T^{j0}



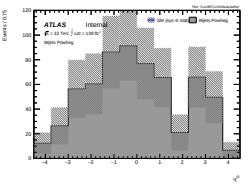
(f) p_T^{j1}



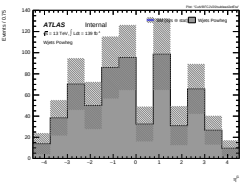
(g) η^{l0}



(h) η^{l1}

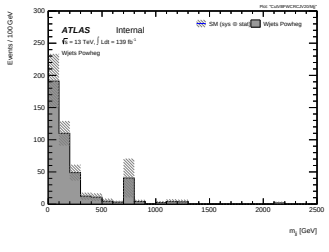


(i) η^{j0}

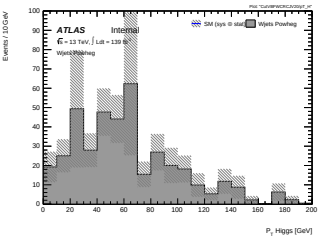


(j) η^{j1}

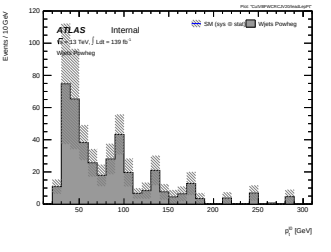
Figure 5: Distributions after preselection, 2-jets, b-veto and CJV cuts for W+jets MC samples in the signal region (id-id).



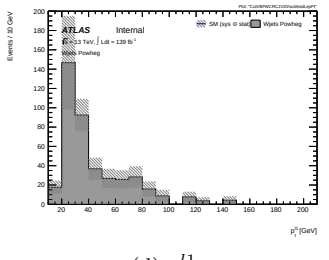
(a) m_{jj}



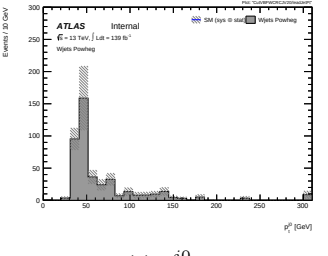
(b) p_T^H



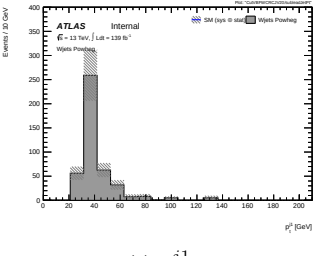
(c) p_T^{l0}



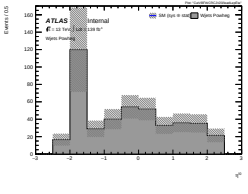
(d) p_T^{l1}



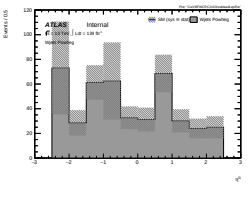
(e) p_T^{j0}



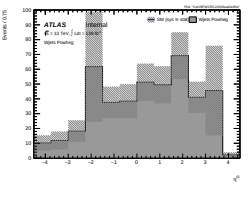
(f) p_T^{j1}



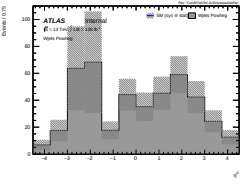
(g) η^{l0}



(h) η^{l1}

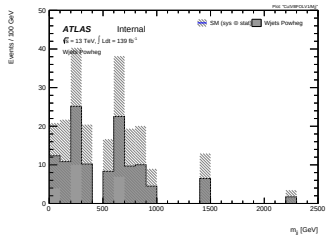


(i) η^{j0}

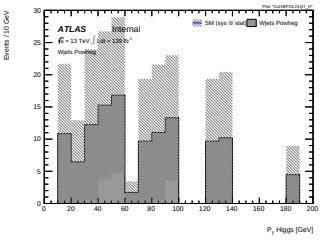


(j) η^{j1}

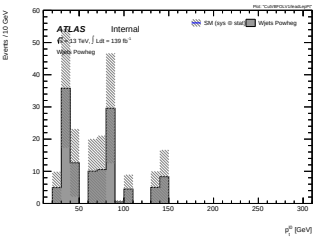
Figure 6: Distributions after preselection, FFs, 2-jets, b-veto and CJV cuts for W+jets MC samples in the W+jets control region (id-anti-id).



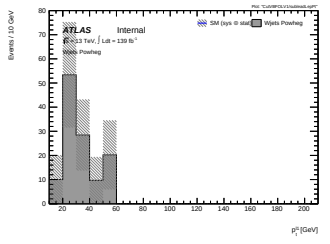
(a) m_{jj}



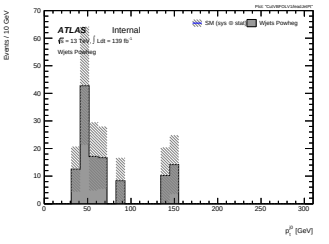
(b) p_T^H



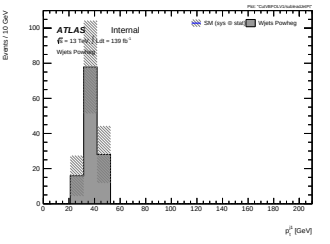
(c) p_T^{l0}



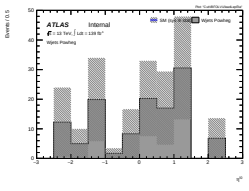
(d) p_T^{l1}



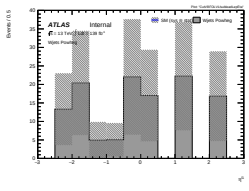
(e) p_T^{j0}



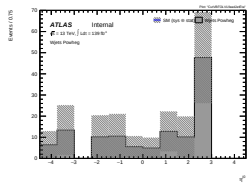
(f) p_T^{j1}



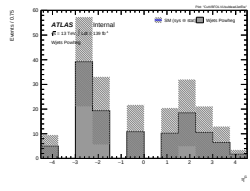
(g) η^{l0}



(h) η^{l1}

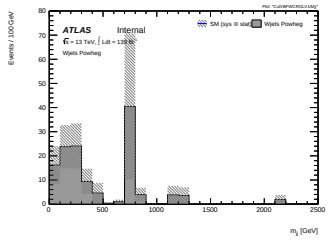


(i) η^{j0}

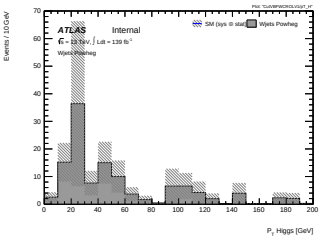


(j) η^{j1}

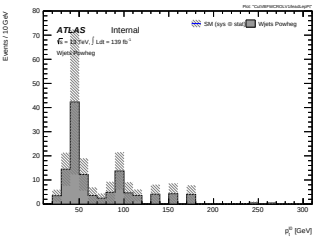
Figure 7: Distributions after preselection, 2-jets, b-veto, CJV and OLV cuts for W+jets MC samples in the signal region (id-id).



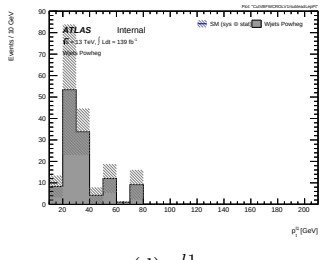
(a) m_{jj}



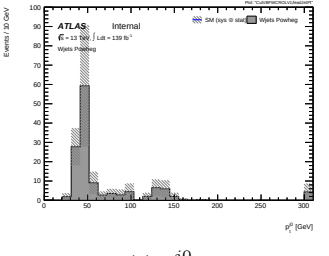
(b) p_T^H



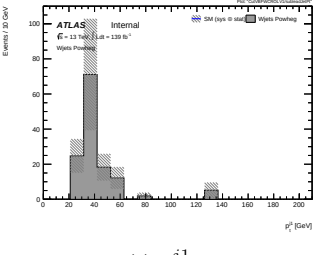
(c) p_T^{l0}



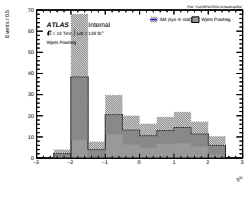
(d) p_T^{l1}



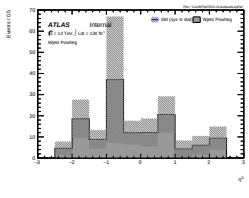
(e) p_T^{j0}



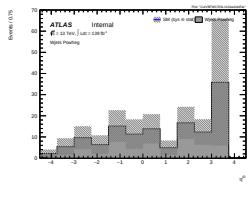
(f) p_T^{j1}



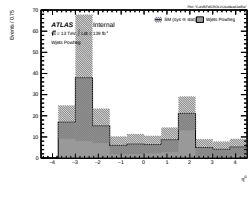
(g) η^{l0}



(h) η^{l1}

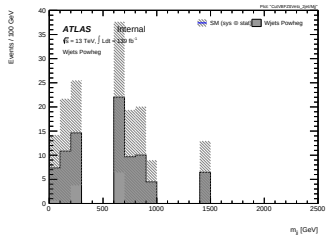


(i) η^{j0}

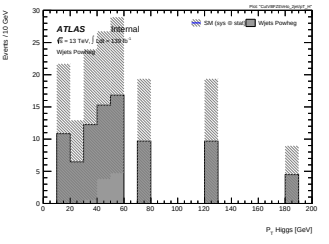


(j) η^{j1}

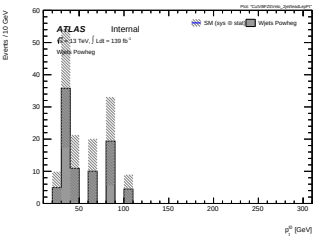
Figure 8: Distributions after preselection, FFs, 2-jets, b-veto, CJV and OLV cuts for W+jets MC samples in the W+jets control region (id-anti-id).



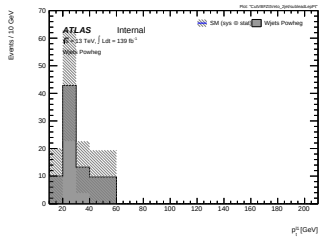
(a) m_{jj}



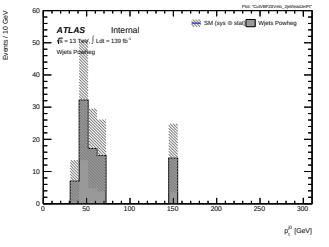
(b) p_T^H



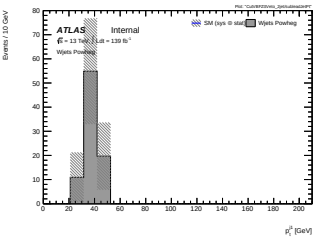
(c) p_T^{l0}



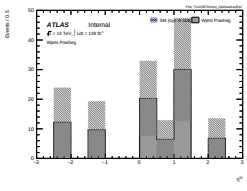
(d) p_T^{l1}



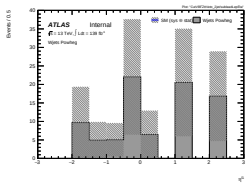
(e) p_T^{j0}



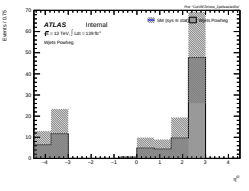
(f) p_T^{j1}



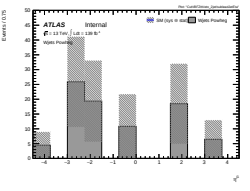
(g) η^{l0}



(h) η^{l1}

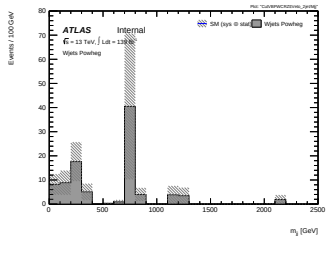


(i) η^{j0}

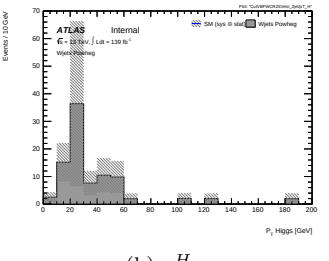


(j) η^{j1}

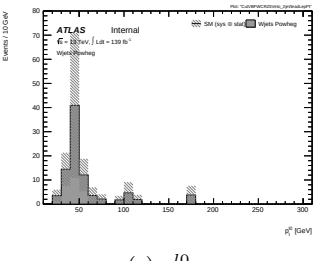
Figure 9: Distributions after preselection, 2-jets, b-veto, CJV, OLV and Z-veto cuts for W+jets MC samples in the signal region (id-id).



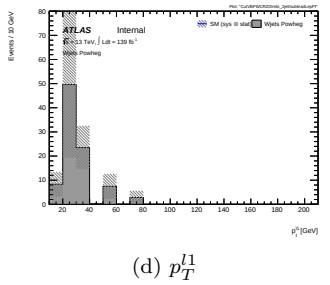
(a) m_{jj}



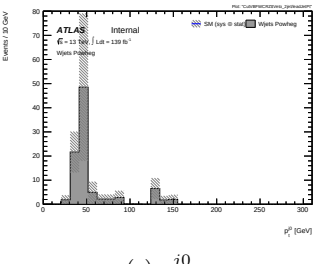
(b) p_T^H



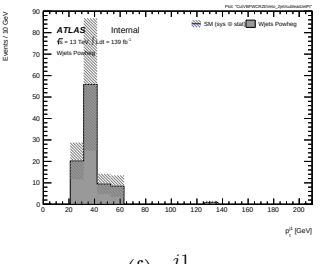
(c) p_T^{l0}



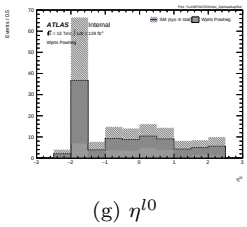
(d) p_T^{l1}



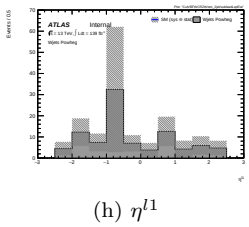
(e) p_T^{j0}



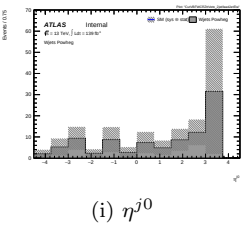
(f) p_T^{j1}



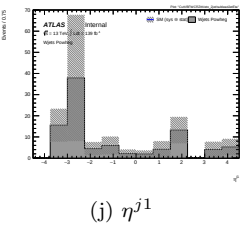
(g) η^{l0}



(h) η^{l1}

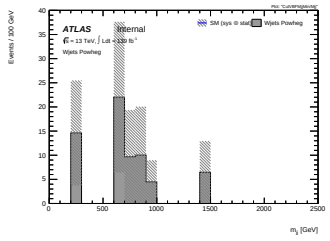


(i) η^{j0}

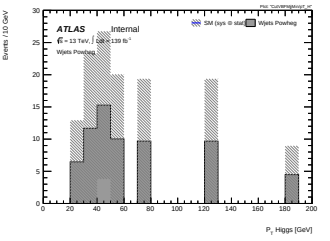


(j) η^{j1}

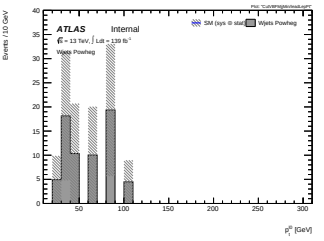
Figure 10: Distributions after preselection, FFs, 2-jets, b-veto, CJV, OLV, and Z-veto cuts for W+jets MC samples in the W+jets control region (id-anti-id).



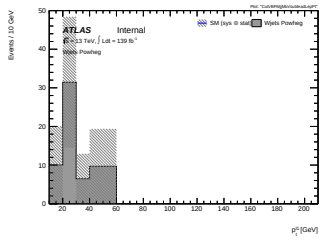
(a) m_{jj}



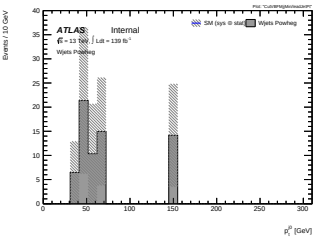
(b) p_T^H



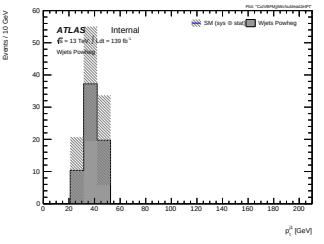
(c) p_T^{l0}



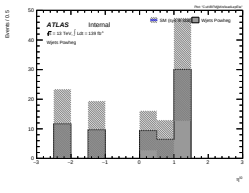
(d) p_T^{l1}



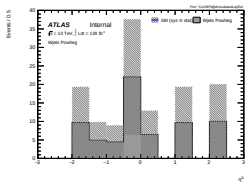
(e) p_T^{j0}



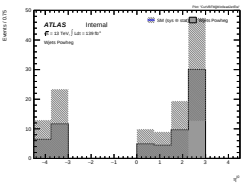
(f) p_T^{j1}



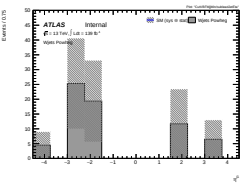
(g) η^{l0}



(h) η^{l1}

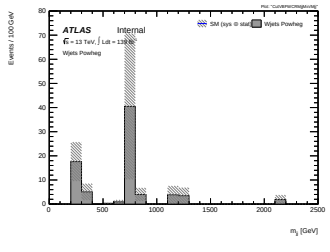


(i) η^{j0}

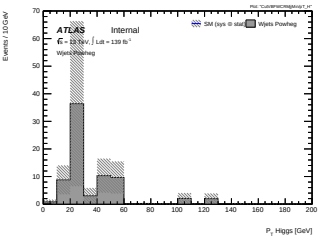


(j) η^{j1}

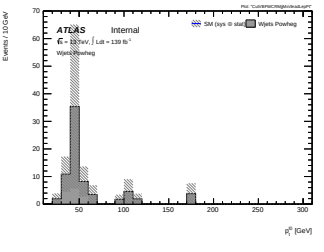
Figure 11: Distributions after preselection, 2-jets, b-veto, CJV, OLV, Z-veto and m_{jj} cuts for W+jets MC samples in the signal region (id-id).



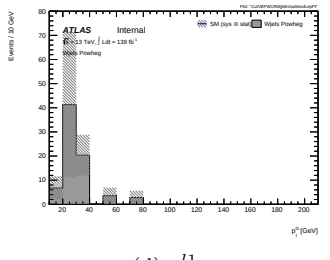
(a) m_{jj}



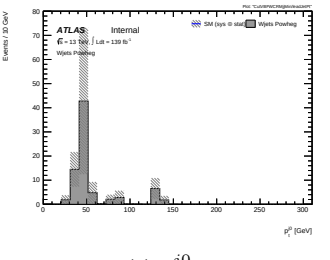
(b) p_T^H



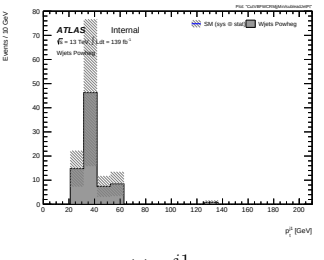
(c) p_T^{l0}



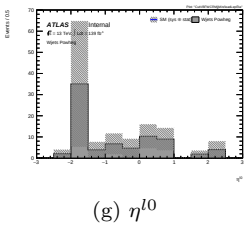
(d) p_T^{l1}



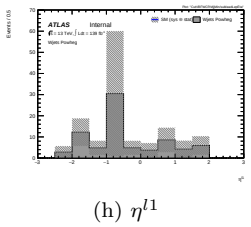
(e) p_T^{j0}



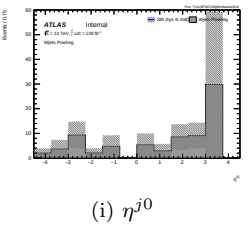
(f) p_T^{j1}



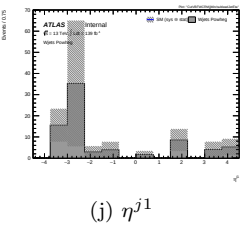
(g) η^{l0}



(h) η^{l1}

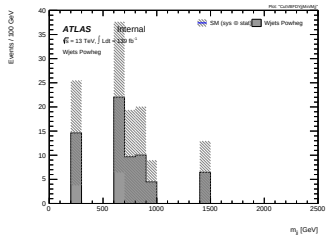


(i) η^{j0}

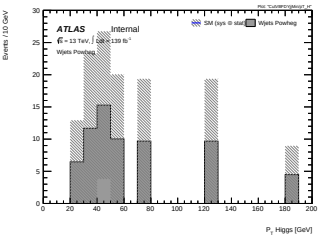


(j) η^{j1}

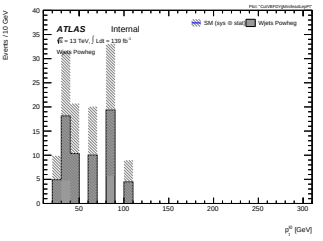
Figure 12: Distributions after preselection, FFs, 2-jets, b-veto, CJV, OLV, Z-veto and m_{jj} cuts for W+jets MC samples in the W+jets control region (id-anti-id).



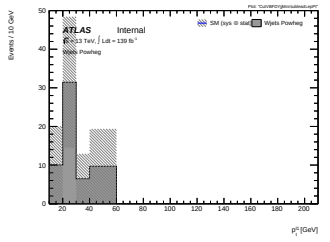
(a) m_{jj}



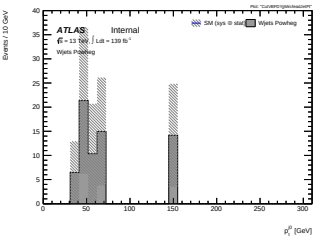
(b) p_T^H



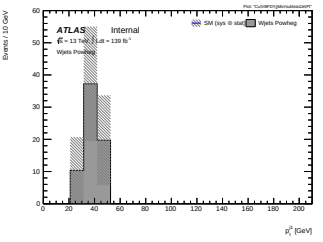
(c) p_T^{l0}



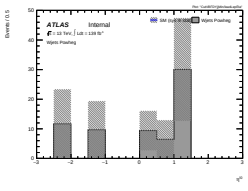
(d) p_T^{l1}



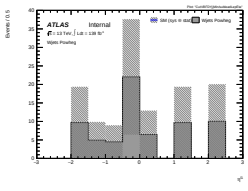
(e) p_T^{j0}



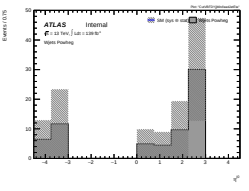
(f) p_T^{j1}



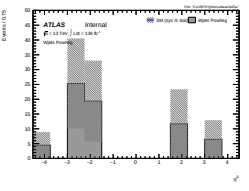
(g) η^{l0}



(h) η^{l1}

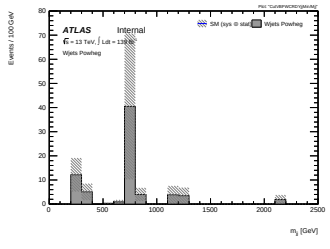


(i) η^{j0}

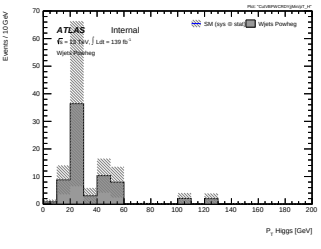


(j) η^{j1}

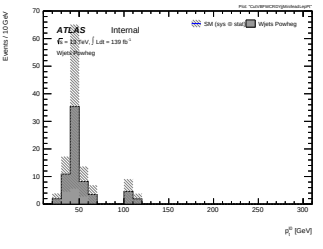
Figure 13: Distributions after preselection, 2-jets, b-veto, CJV, OLV, Z-veto, m_{jj} and ΔY_{jj} cuts for W+jets MC samples in the signal region (id-id).



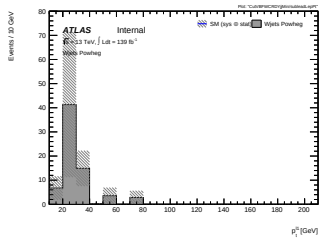
(a) m_{jj}



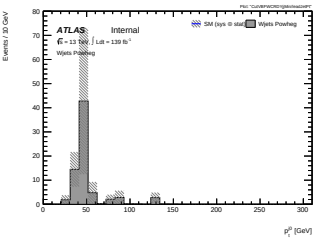
(b) p_T^H



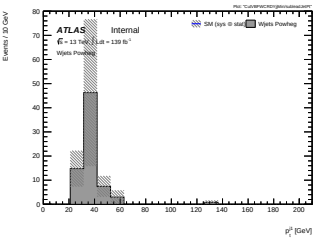
(c) p_T^{l0}



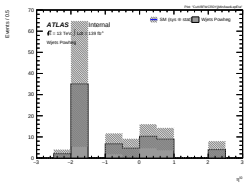
(d) p_T^{l1}



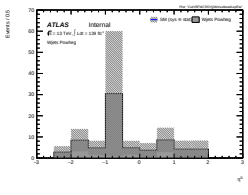
(e) p_T^{j0}



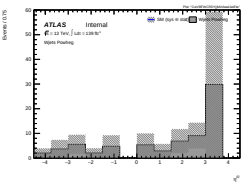
(f) p_T^{j1}



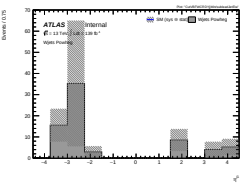
(g) η^{l0}



(h) η^{l1}



(i) η^{j0}



(j) η^{j1}

Figure 14: Distributions after preselection, FFs, 2-jets, b-veto, CJV, OLV, Z-veto, m_{jj} and ΔY_{jj} cuts for W+jets MC samples in the W+jets control region (id-anti-id).