Hypothesis plots summary

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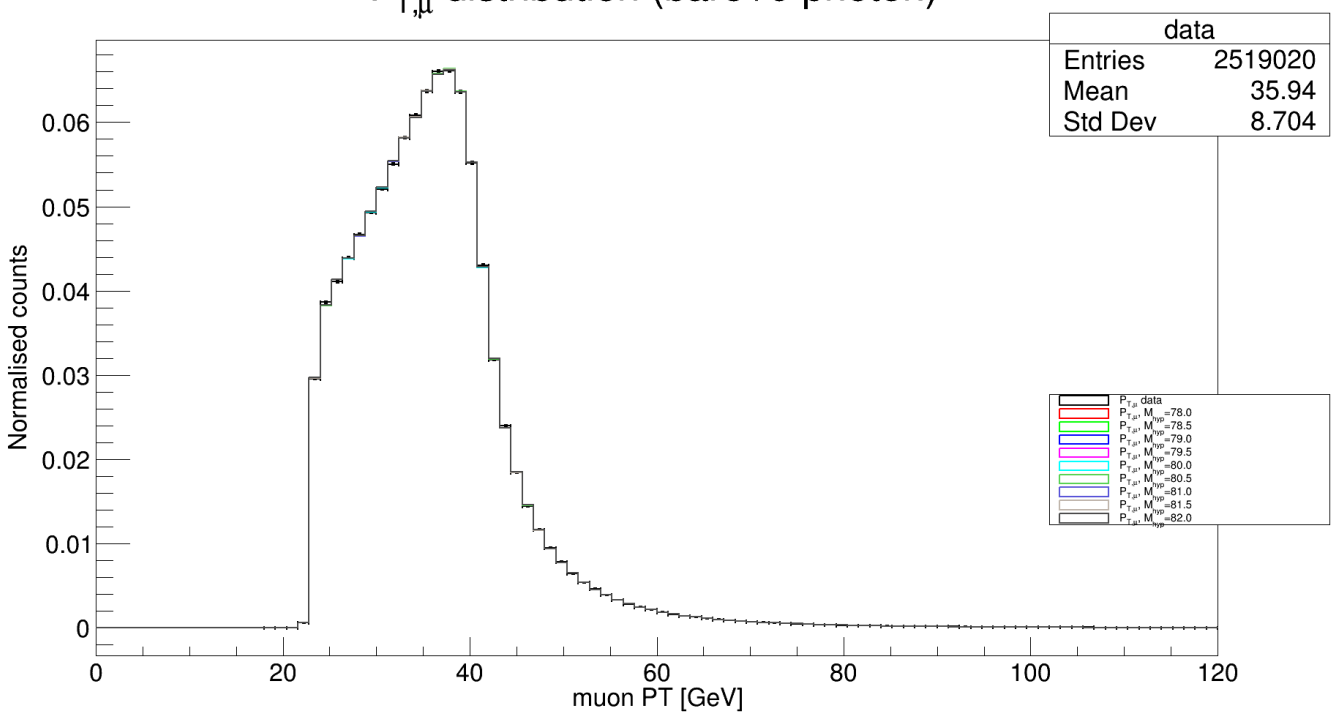
Plots and corresponding metadata

mean expected W mass: 80.379 $[GeV/c^2]$,
mean hypothesis masses: [78. 78.5 79. 79.5 80. 80.5 81. 81.5 82.] $[GeV/c^2]$,
mass width: 2.07 $[GeV/c^2]$,
chi_square value of hypothesis fit: 41.682632838592745
Absolute path to figure: /home/physics/phuxdp/Desktop/PX402 Physics Project/WBosonProject/T2W5/plots/r
Next lines are the data of the shown histograms (if needed):
All quantities: 80.379, [78. 78.5 79. 79.5 80. 80.5 81. 81.5 82.], 2070, 41.682632838592745
X_energ_vls = [0.6, 1.7999999999999998, 3.0, 4.199999999999999, 5.4, 6.6, 7.8, 9.0, 10.2, 11.3999999999
12.6, 13.799999999999999, 15.0, 16.2, 17.4, 18.6, 19.799999999999997, 21.0, 22.2, 23.4, 24.6,
25.799999999999997, 27.0, 28.199999999999996, 29.4, 30.6, 31.799999999999997, 33.0, 34.2,
35.4, 36.599999999999994, 37.8, 39.0, 40.2, 41.4, 42.599999999999994, 43.8, 45.0, 46.2, 47.4,
48.599999999999994, 49.8, 51.0, 52.2, 53.4, 54.599999999999994, 55.8, 57.0, 58.199999999999996,
59.4, 60.599999999999994, 61.8, 63.0, 64.19999999999999, 65.4, 66.6, 67.8, 69.0, 70.19999999999999,
71.4, 72.6, 73.8, 75.0, 76.19999999999999, 77.4, 78.6, 79.8, 81.0, 82.19999999999999, 83.4,
84.6, 85.8, 87.0, 88.19999999999999, 89.4, 90.6, 91.8, 93.0, 94.19999999999999, 95.4, 96.6, 97.8,
99.0, 100.19999999999999, 101.4, 102.6, 103.8, 105.0, 106.19999999999999, 107.4, 108.6, 109.8,
111.0, 112.19999999999999, 113.4, 114.6, 115.79999999999998, 117.0, 118.19999999999999,
119.4]
Y_data_bin_cnts = [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 2.0, 1.0,
22.0, 1489.0, 74358.0, 97268.0, 103398.0, 110581.0, 117586.0, 124146.0, 131104.0, 138550.0,
146457.0, 153167.0, 160283.0, 166239.0, 166552.0, 160112.0, 138916.0, 108363.0, 80056.0, 60365.0,
46302.0, 36320.0, 29356.0, 23917.0, 19684.0, 16134.0, 13535.0, 11629.0, 9812.0, 8341.0, 7057.0,
6261.0, 5391.0, 4703.0, 4022.0, 3551.0, 3209.0, 2798.0, 2519.0, 2255.0, 1986.0, 1795.0, 1653.0,
1479.0, 1359.0, 1181.0, 1055.0, 966.0, 884.0, 775.0, 716.0, 679.0, 629.0, 564.0, 534.0, 440.0,
459.0, 393.0, 399.0, 381.0, 341.0, 309.0, 291.0, 235.0, 242.0, 208.0, 202.0, 184.0, 159.0, 179.0,
166.0, 156.0, 125.0, 120.0, 103.0, 99.0, 98.0, 105.0, 72.0, 83.0, 84.0, 65.0, 69.0]
Y_model_bin_cnts = [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.9608226418495178,
1.9216463565826416, 3.8432936668395996, 18.255640029907227, 1429.6951904296875, 71774.078125,
92617.7734375, 100092.90625, 106117.984375, 112577.40625, 119587.4453125, 126507.15625,
133990.078125, 140644.796875, 146556.078125, 154044.78125, 158789.4375, 160200.0625, 153735.0156
133684.125, 103564.7734375, 77319.640625, 57478.203125, 44721.7578125, 35277.66015625,
28096.5703125, 22664.388671875, 18688.986328125, 15737.9443359375, 13054.0478515625, 10866.954
9428.431640625, 7994.71337890625, 6874.26416015625, 5815.31298828125, 5261.8173828125,
4456.54833984375, 3991.458984375, 3484.08837890625, 3117.972412109375, 2744.17236328125,
2384.784912109375, 2154.162353515625, 1863.0223388671875, 1736.1947021484375, 1559.4046630859



1403.752685546875, 1252.9046630859375, 1209.66796875, 1044.4078369140625, 948.3262939453125, 840.7147827148438, 764.810302734375, 716.7696533203125, 634.1396484375, 613.0015258789062, 541.9011840820312, 457.3494567871094, 437.1723937988281, 399.7005310058594, 419.8776245117187 362.22869873046875, 318.9920959472656, 282.48089599609375, 308.42315673828125, 232.5184173583 204.65487670898438, 220.98867797851562, 214.26318359375, 182.55596923828125, 186.399322509765 153.73147583007812, 157.57470703125, 153.7314910888672, 126.82865142822266, 121.063636779785 116.25952911376953, 110.49457550048828, 86.47396087646484, 115.29866790771484, 84.5523605346 86.47403717041016, 86.47406005859375, 75.90495300292969, 67.25758361816406, 51.88441848754883

Found optimal massses (χ^2 roots): [80.42920702] $[GeV/c^2]$ Uncertainty [GeV/c^2] : 0.05787070778021075

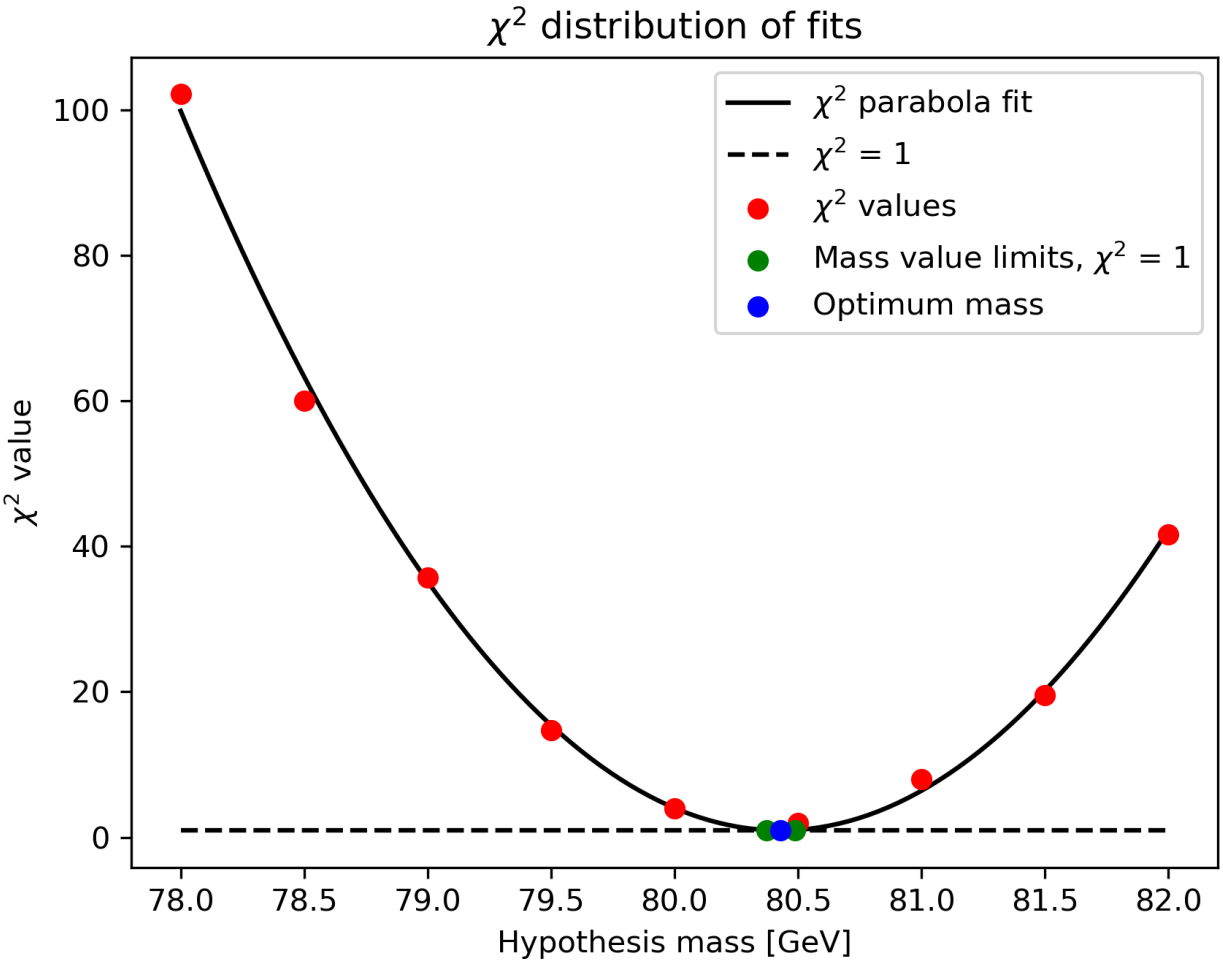


Figure 2: χ^2 of hypothesis masses.

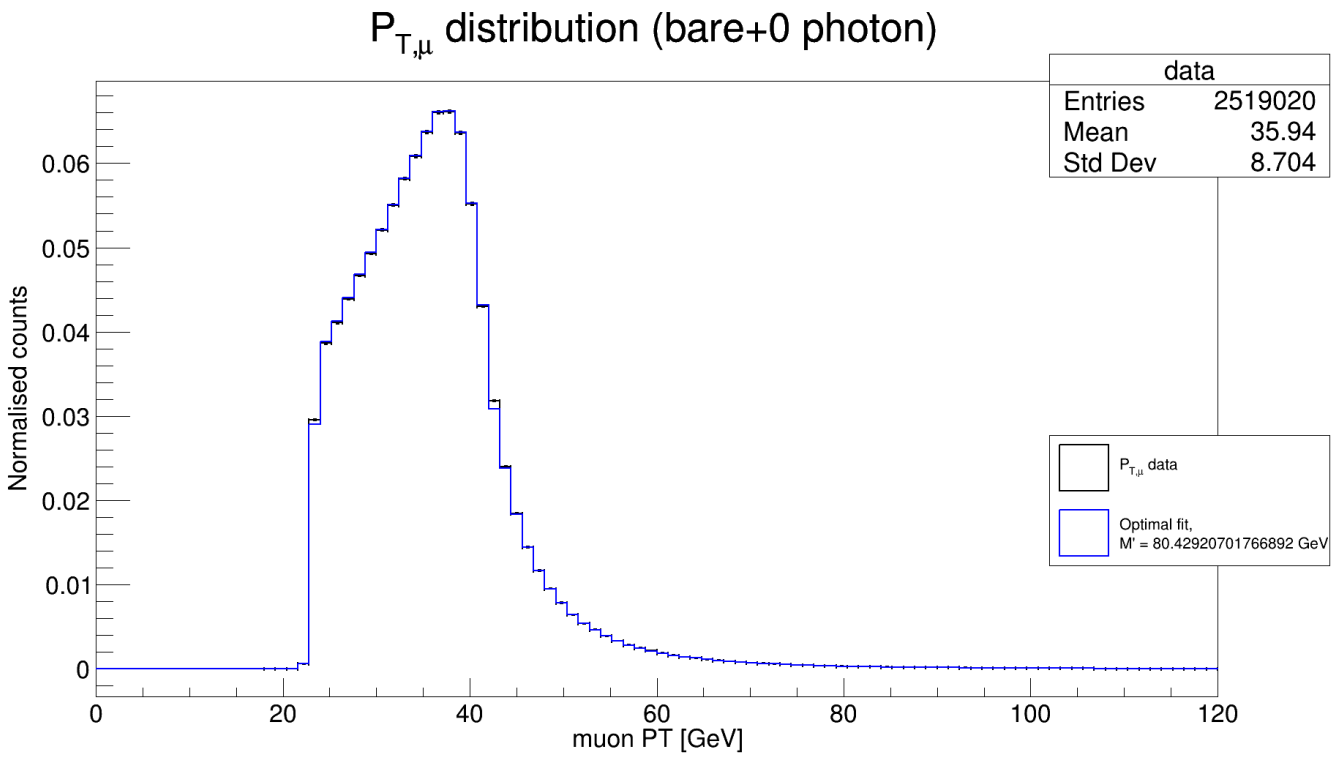


Figure 3: Data and optimum fit with $\chi^2 = 1.0291609941362794$. Used the hypothesis mass of 80.42920701766892$\pm$0.05787070778021075 $[GeV/c^2]$.