

M_W at Hadron Colliders: Theoretical Considerations

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In light of the recent CDF result on the M_W measurement at the Fermilab Tevatron, I discuss some implications from theoretical considerations. I first summarize the current global fit on the EW parameters from the PDG and observe the clear tension with the CDF M_W measurement. I then discuss the transverse kinematical variables at hadron colliders, such as $P_T(e)$ and $M_T(en)$, from which the M_W is extracted at hadron colliders. Unlike the invariant mass variable, those transverse variables have a convoluted relation with M_W , and depend on the finite W width and the transverse motion of the W . Finally, taking the face value of the CDF M_W result, I briefly comment on the possible new physics needed to accommodate the discrepancy.

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