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Weakly coupled resonant NP at the Tevatron $t\bar{t}$ forward-backward asymmetry

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We show that Tevatron recent results on the $t\bar{t}$ forward-backward asymmetry for large invariant mass might be suggesting a possible contribution of a light (~ 700 GeV) and narrow resonance in the s channel. The resonant contribution of this particle to the $p\bar{p} \rightarrow t\bar{t}$ process would generate a high invariant-mass forward-backward asymmetry and, being narrow, the invariant mass spectrum would be only slightly modified close to the mass. We perform a phenomenological analysis and compare our results to the experimental ones, obtaining good agreement within the still large uncertainties on the later. We show that, due to small couplings to the light quarks, this resonance would be still beyond present sensitivity in searches for New Physics in dijet mass and angular distributions.

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