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The invariant mass distribution of dijets produced in association with W bosons, recently observed by the CDF Collaboration at Tevatron, reveals an excess in the dijet mass range 120-160 GeV/c², 4.1 σ beyond Standard Model expectations. We show that such an excess is a generic feature of low mass string theory, due to the production and decay of a hadrophillic Z' , a singlet partner of $SU(3)$ gluons coupled primarily to the $U(1)$ baryon number. In this framework, $U(1)$ and $SU(3)$ appear as subgroups of $U(3)$ associated with open strings ending on a stack of 3 D-branes. In addition, our minimal model contains three other stacks of D-branes to accommodate the electroweak $Sp(1)$ and the hypercharge which is a linear combination of the $U(1)$ tied to the color stack and two additional $U(1)$ fields living in the lepton D-brane and the right D-brane. For a given Z' mass, the model is quite constrained. Its free parameters are just sufficient to simultaneously ensure: a small Z - Z' mixing in accord with the stringent LEP data on the Z mass; very small (less than 1%) branching ratio into leptons; and a large hierarchy between Z'' and Z' masses. The heavier neutral gauge boson Z'' is within the reach of LHC.

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