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Gauge-invariant study of the WWγ* and WWZ* vertices in the extra-dimensional standard model

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Abstract

Sensibility to radiative corrections of the $WW\gamma\hat{}andWWZ\hat{}$ vertices emerging from the extra-dimensional standard model's bosonic Kaluza-Kleins excitations is studied. This takes place in the universal extra dimensional proposal. This extension of the standard model does not rest in the enlargement of the gauge group, but rather in the enlargement of the Poncaré group of the theory. The consequences and field content of such model is extensively detailed. The quantum corrections were calculated in a novel manner with the implementation of a electroweak-covariant gauge fixing procedure for the Kaluza-Klein modes. The repercussions of this approach greatly simplifies the diagrammatic computation and renders well behaved and gauge independent amplitudes. In the extra-dimensional framework two types of divergences emerge, and we show how to regularize them using products of gamma and Epstein functions.

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