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A case study about the mass exclusion limits for the BSM vector resonances with the direct couplings to the third quark generation

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The upper bounds that the LHC measurements searching for heavy resonances beyond the Standard model set on the resonance production cross sections are not universal. They depend on various characteristics of the resonance under consideration, and their validity is also limited by the assumptions and approximations applied to their calculations. The bounds are typically used to derive the mass exclusion limits for the new resonances.
We address some of the issues that emerge when deriving the mass exclusion limits for the strongly coupled composite SU(2)L+R vector resonance triplet which would interact directly to the third quark generation only. We investigate the restrictions on the applicability of the generally used limit-obtaining procedure to this particular type of vector resonances.

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