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General Solutions for minimal non-universal Z' gauge bosons

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By allowing gauge anomaly cancellation between fermions in different families we find nonuniversal solutions for Z' models with the same content of fermions of the standard model plus three right-handed neutrinos. We also impose constraints from the Yukawa interaction terms reducing the number of free parameters. Our solutions contain as particular cases well-known models in the literature. As an application, we report a model which evades LHC constraints, flavor changing neutral currents and low energy constraints. Simultaneously, the model is able to explain the flavor anomalies in the Wilson coefficients $C_9(\mu)$ and $C_{10}(\mu)$ without modifying the corresponding Wilson coefficients for the first family. In our approach, this procedure is always possible for Z' masses smaller than ~ 2.5 TeV.

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