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Modifying Froggatt Nielsen : An EFT approach

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Froggatt Nielsen (FN) mechanism, when employed to explain the SM flavor hierarchy, introduces a systematic power counting for BSM physics couplings in the IR. While the power counting in the IR is generally robust to UV details, nonetheless there can be visible deviations from a naïve FN counting owing to specificities of the underlying UV model. In this work, we propose a systematic way to account for these deviations (wrinkles) in the EFT by correlating the power counting of new spurions to that arising from FN. We demonstrate this via an explicit UV realization of these wrinkles in a model of a scalar leptoquark coupled to the SM.

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