

A Simple Perturbative UV Completion of HEFT

based on arXiv:2110.02967

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Higgs 2021

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- Unitarity constraints imply finite search space

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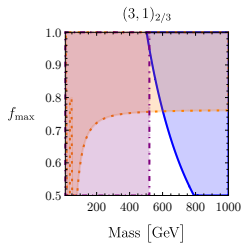
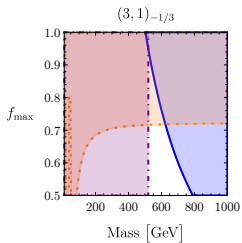
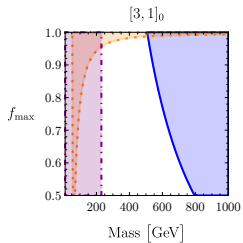
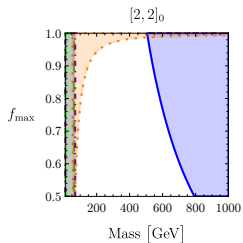
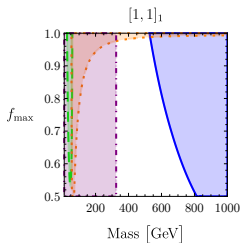
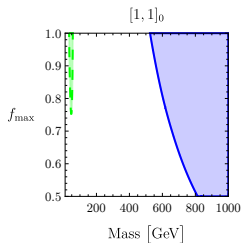
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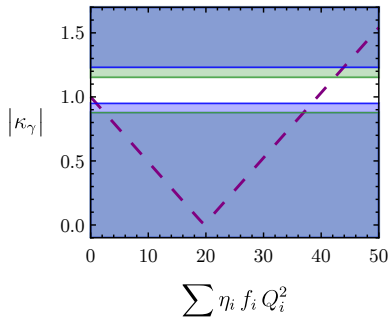
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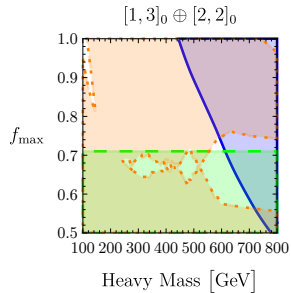
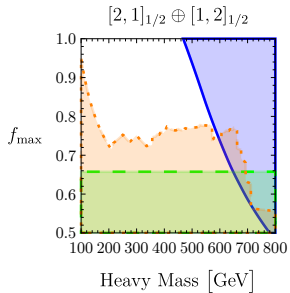
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- Direct detection [various sources]



$m \gtrsim 500 \text{ GeV}$





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- Improved Higgs coupling measurements
- Particularly $hZ\gamma$ and hhh

- Integrating out a particle acquiring most of its mass from the Higgs (a “Loryon”) requires the use of HEFT.
- There are sizable viable regions of the Loryon parameter space.
- Improved measurements of Higgs properties would substantially narrow the allowed parameter space.