

# FeynRules : New Features and Prospects

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# Assumptions

- For renormalizable theories :

Only vertices with  $\leq 4$  legs

- In Feynman gauge :

All bosons are treated in the same way

- $[\gamma_5, \bar{\gamma}_\mu] = 0$  (As in FeynArts)

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- takes approx. 5 min
- is fully tested (**QCD** : Draggiotis, P. et al. JHEP 0904 (2009) 072, **EW** : Garzelli, M.V. et al. JHEP 1001 (2010) 040, Erratum-ibid. 1010 (2010) 097.)

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- takes approx. 2 hours (QCD Only)
- is partially tested (Shao, H.-S., Zhang, Y.-J., JHEP 1206 (2012) 112.)

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Automatic renormalization in the  $\overline{\text{MS}}$ -scheme with FeynRules :

- 1 Automated extraction of the renormalized Lagrangian ✓
- 2 Modification of the FeynArts interface to include counterterms ✓
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- Part or MSSM validation
- UV (waiting answer from Thomas)
- Write UFO
- Extra : Start dim  $> 4$