Introduction

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10th MCnet meeting

CERN

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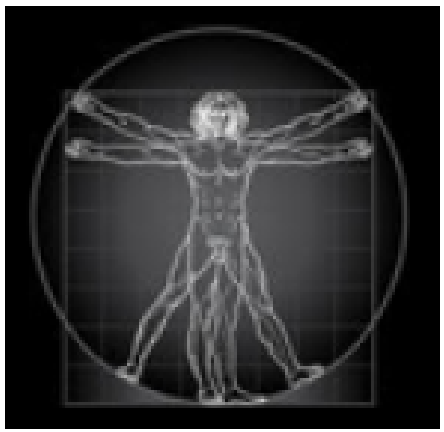
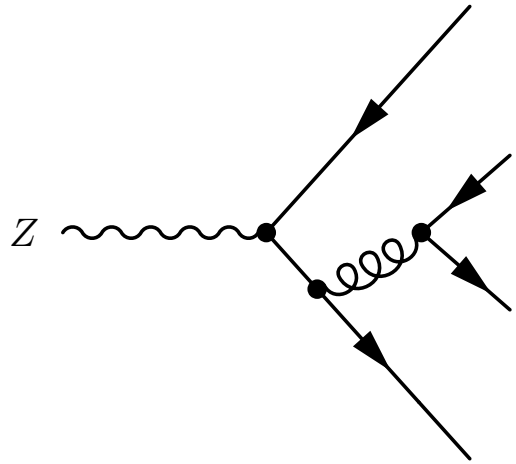
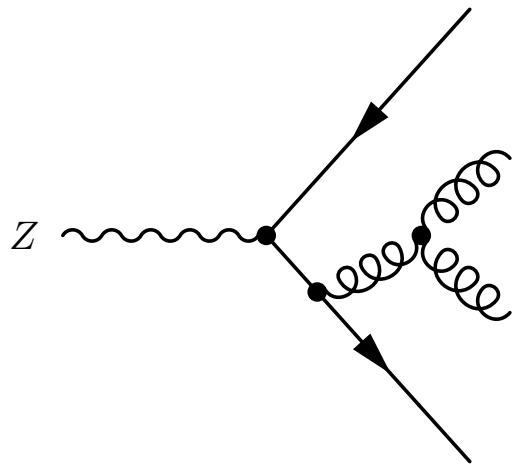
$Z \to 4$ jets

VINCIA



correct shower to the
NLO matrix element
for $Z \to 4$ jets





Supersymmetric Higgs: http://sushi.hepforge.org

Download

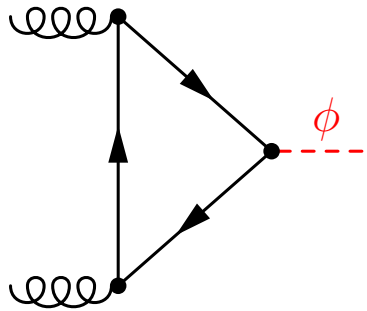
Follow @sushi4physics

Version 1.2.0 (16.01.2014) is available here: Download
Manual for Version 1.2.0
For linking SusHi to FeynHiggs type "./configure; make predef=FH"!
For linking SusHi to 2HDMC type "./configure; make predef=2HDMC"!

Details

SusHi (Supersymmetric Higgs) is a Fortran code, which calculates Higgs cross sections in gluon fusion and bottom-quark annihilation at hadron colliders in the SM, the 2HDM and the
MSSM. Apart from inclusive cross sections up to NNLO QCD, differential cross sections with respect to the Higgs' transverse momentum and (pseudo)rapidity can be calculated.

- Gluon fusion:
  - Exclusive cross sections at NLO
  - Inclusive cross sections at NNLO QCD for top and stop (approximation)



- Bottom quark annihilation:

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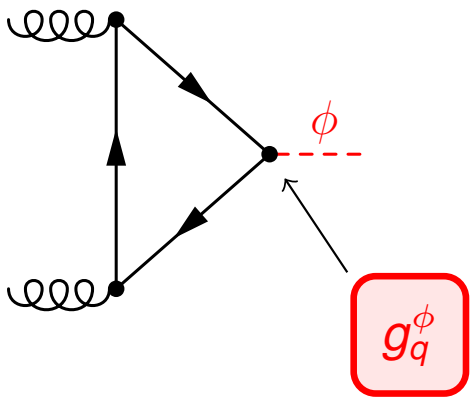

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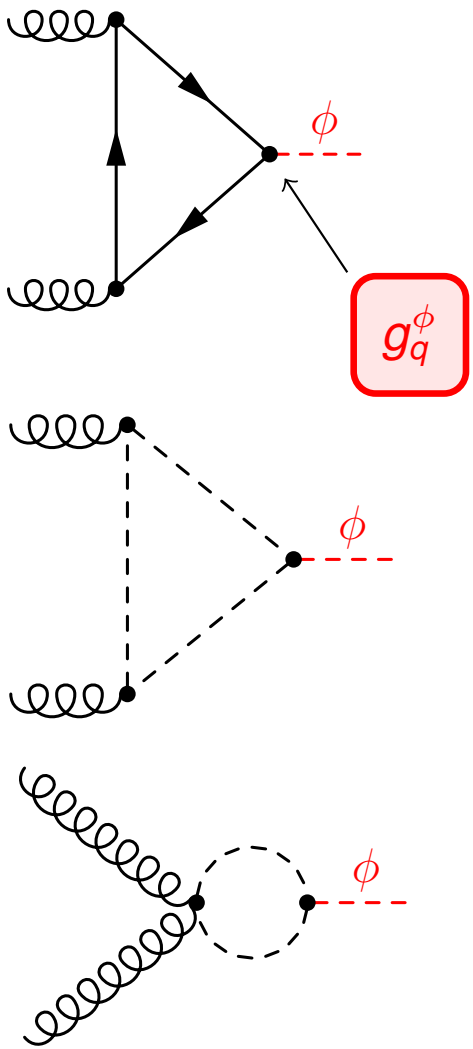

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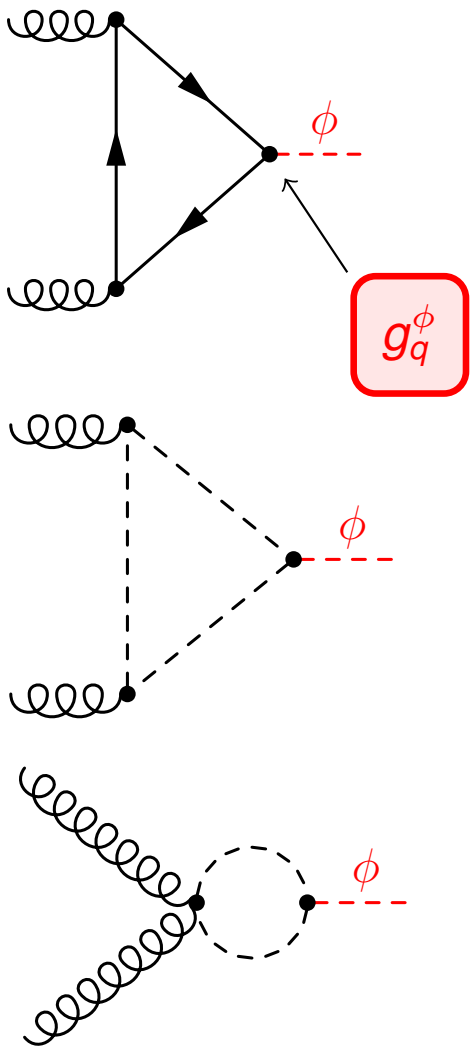

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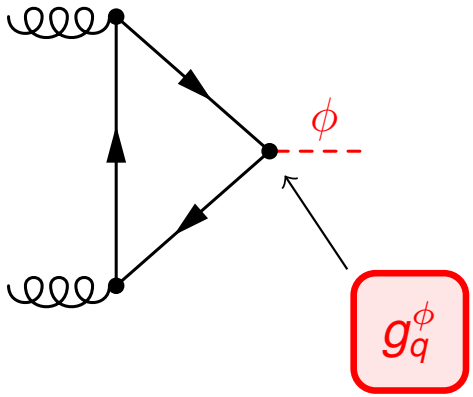

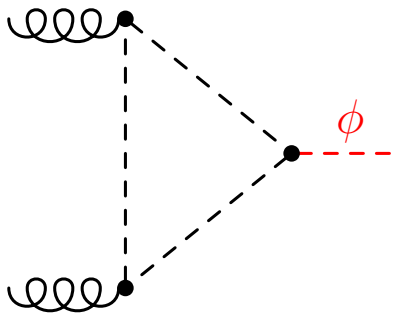

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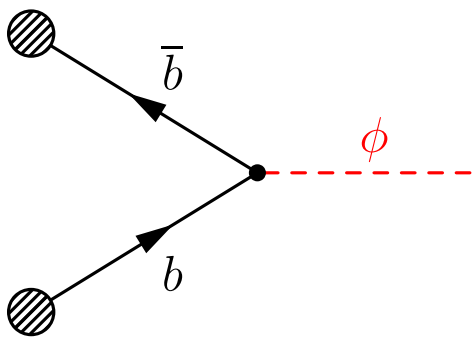

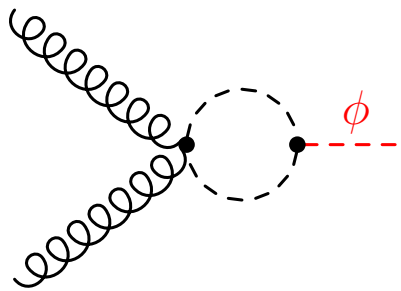

Use gluon fusion amplitudes from SusHi to obtain resummed p_T-distributions:

- Analytic resummation
  - in the SM [HM, Wiesemann '12]
  - in the MSSM and the 2HDM [HM, Wiesemann]
- MadGraph5_aMC@NLO [HM, Wiesemann]
- POWHEG
  - in the SM, the MSSM and the 2HDM [HM, Wiesemann]

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