Self-presentation

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CERN Theory Group Retreat

Les Houches

November 5, 2014

Research interests

- Fortran code SusHi (Supersymmetric Higgs) [Harlander, Liebler, HM]
  - Higgs production in gluon fusion and bottom quark annihilation within the SM, the MSSM and the 2HDM.

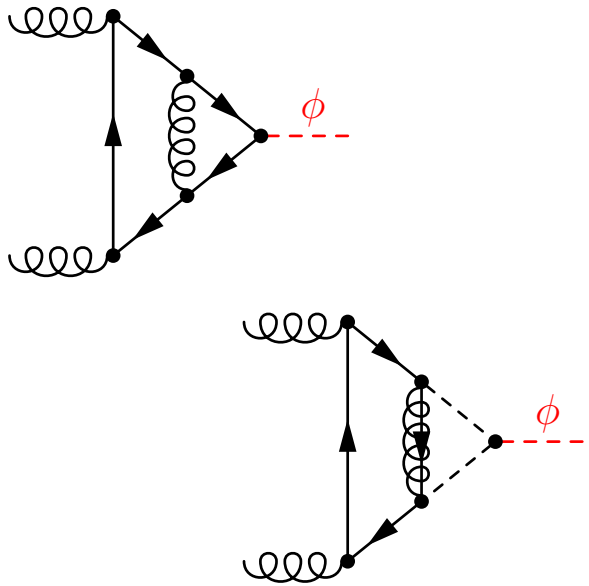
- MoRe-SusHi (Momentum Resummed-Supersymmetric Higgs) [HM, Wiesemann]
  - Analytic resummation for gluon fusion in the SM, the MSSM and the 2HDM.

- Matching NLO calculation with parton showers (Higgs production in gluon fusion in the SM, MSSM and 2HDM):
  - POWHEG [HM]
  - MC@NLO [HM, Wiesemann]

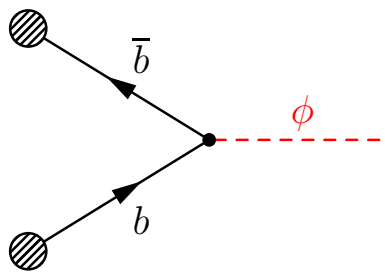
- Matching with Vincia [HM, Skands]
  - Finding evolution- and renormalization-scale choice that absorbs all logarithms at NLO.

Gluon fusion

- NLO QCD corrections for quarks and squarks
- NNLO QCD corrections for top and stop (approx.)
- Electro-weak corrections due to light quarks



Bottom quarks annihilation at NNLO QCD



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Thanks for your attention!