Alexander Mitov

Cavendish Laboratory

South-East UK QCD and collider phenomenology meeting
Nov 17, 2023

UNIVERSITY OF
CAMBRIDGE

erc

Precision QCD applications for the LHC

✓ Amplitudes

  ✓ 2->3 scattering (massless and masses)

✓ NNLO cross sections for a wide variety of processes

  ✓ Jets: 2 and 3 jets, W+c, jets + photons
  ✓ Vector bosons
  ✓ Top pair production and decay
  ✓ Heavy flavor fragmentation

✓ A public database with ready to use predictions

  ✓ HighTEA

✓ Current members

**Terry Generet
(joined 2023)**

Recent former members
(Left 2023)

Rene Poncelet


Faculty, Cracow

Bayu Hartanto
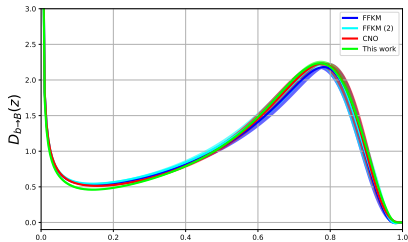

Junior group leader, Korea

Terry Generet

- Previously (PhD) at RWTH Aachen University

- Now (postdoc) working with Alex Mitov

- Research interests:
  - Higher-order calculations (numerical and analytic)
  - Subtraction schemes (STRIPPER)
  - Resummation (collinear mass logs, soft-gluons)
  - Fragmentation (perturbative and non-perturbative, decay)
  - Heavy-quark production (top and bottom so far)

Some results

- A *B*-hadron fragmentation function fit (arXiv:2210.06078)

- $p\,p \to t\bar{t} + X \to B + X' \to \mu + X''$: muon energy-distribution
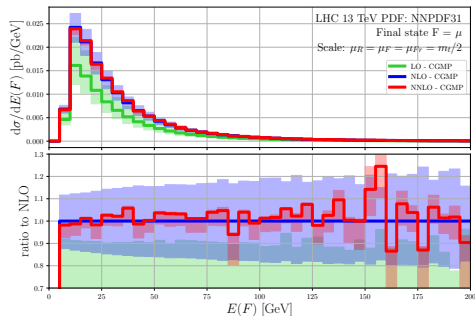
- The $t \to H$ and $g \to H$ fragmentation functions (arXiv:2106.06516)