

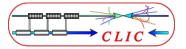


## SM channels for muon system study

2 channels I want to mention:

- $b \rightarrow \mu X$ 
  - Signal, not background.
  - Fraction ratio ~ 10%
  - We extract it from inclusive sampels? Probably supplied for other WGs: inclusive H→bb, Z(')→bb,...
- yy → hadrons, with very low GEANT thresholds for thermal neutron flux study
  - Starting from an analysis done in LHCb





## Framework description

- A new study of the low energy background has been done with the actual detector geometry and in the Gauss (v24r6) framework
  - Thresholds very low in production (EM processes)
    - Electron/positron: 5 mm -> 0.5 mm (in range)
    - 10 mm -> 0.5 mm photon:
  - Thresholds very low in tracking (PL: QGSP\_BERT\_HP)
    - electrons/positrons: 1 MeV -> 30 keV
    - 1 MeV -> 30 keV photons:
    - hadrons: 10 MeV -> 0.1 MeV
    - 10 MeV -> 0 MeV neutrons:
  - Geometry updated introducing the cavern and materials beyond the MF4 (magnet and concrete wall)
- ~45000 events have been generated to produce parameterizations (~6 min/event @1GHz Xeon)