LHC PHENOMENOLOGY

Jets & Fat Jets

- hadronization: forming hadrons out of quarks and gluons.

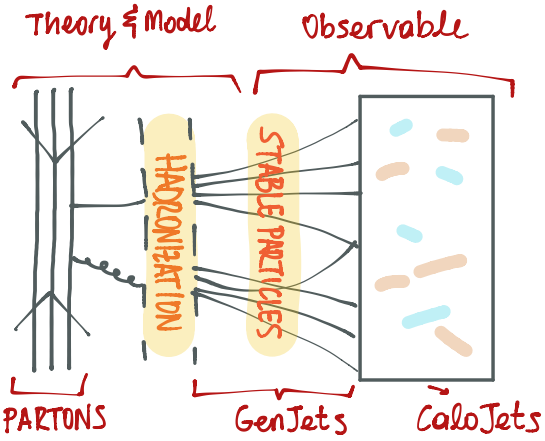
  mesons $q\bar{q}$ baryons qqq

  – Gluon & all quarks (except t) hadronize before decay. Top quark can not hadronize, because its half life is not long enough for it.

- jet: when a high energy quark transforms into a spray of hadrons.

  – again, for the top quark it's different. t decays to W and b before a jet can form.

  – jets measured in hadron colliders produced in the hard interaction.
  → the scattering between partons.



- GenJets: created from stable simulated particles.
- CaloJets: created using the calorimeter output
- coupling constant: a parameter that defines the strength of the force used in an interaction.

  – α_s: strong coupling constant.

- recombination algorithm: analyses hadronic events in high energy collisions.

→ The goal is to reconstruct to the original partons, the ones that originate from the hard QCD process.