Detector performance studies with fast simulation: flavor tagging

Study the dependence flavor tagging algorithms
on the impact parameter resolution and other detector
parameters

The study is done using parametrized detector simulation
(DELPHES)

Specific Tasks:

1) Compare the performance existing collider flavor tagging algorithms
eg : ATLAS, CMS, Belle2

2) Port at least one of these algorithms to the FCC software framework and adapt it
to the case to the FCC-ee specific needs defining udsg , c, and b jets

3) Produce a gen-level flavor tagging algorithm and study its performance
as a function of the jet pt and theta

4) Study the dependence of the tagging on the jet parameters using
"reconstructed" jets tagged in flavor at generator level

5) Repeat the study with different resolutions on the impact parameter

6) Study the dependence of the tagging on the acceptance (low momentum) of
charged tracks

7) Supplement flavor tagging with impact parameter with tagging based on other jets
properties, e.g. soft leptons, track multiplicity vs energy, distribution of track
momenta inside the jet….