



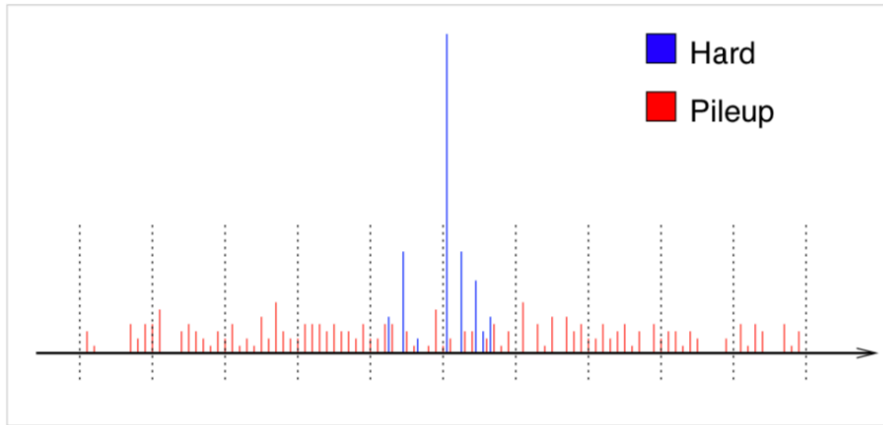
# PileUp mitigation in HGCal

## *7<sup>th</sup> Patatrack Hackathon*

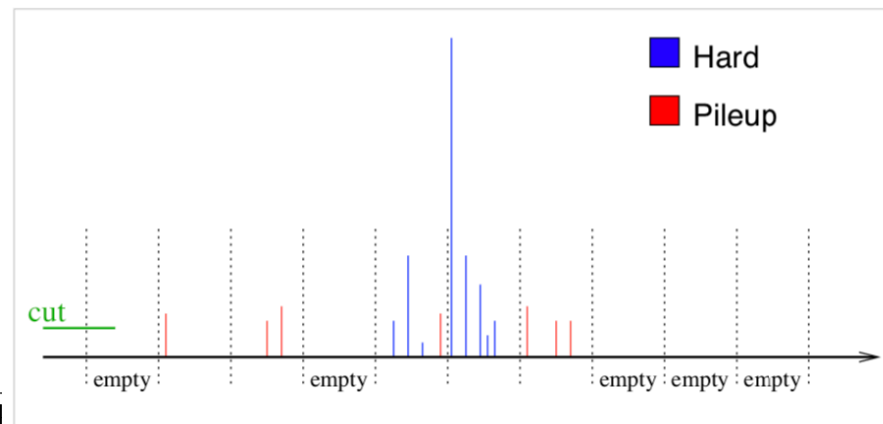
**Felice, Marco, Loukas**

- First approach using an approach inspired from “Softkiller” [1407.0408]
  - ◆ Particle-level based pileup correction
  - ◆ Removes softest “particles” in the event up to a  $p_T$ -threshold that is determined dynamically for each event

Original event



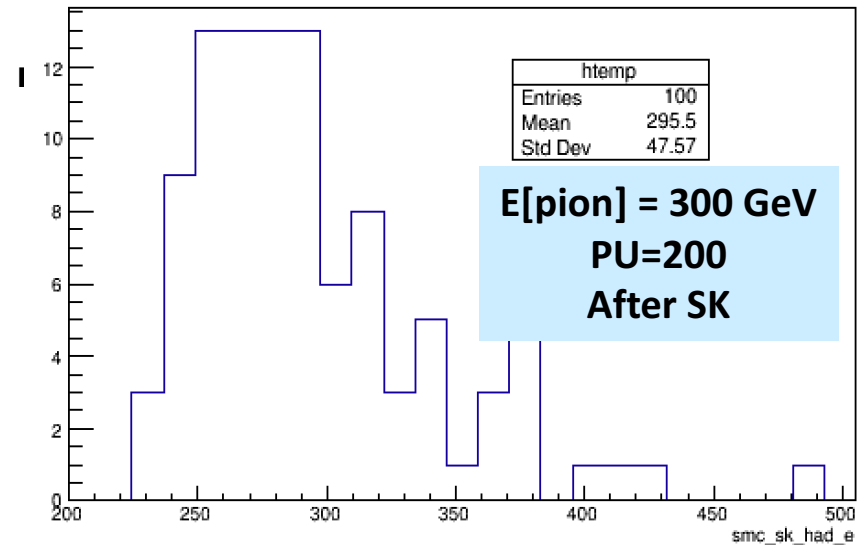
After SoftKiller



- Goals for day1:

- ◆ set up the machinery for this study
- ◆ Very preliminary implementation in place

smc\_sk\_had\_e



- Main focus for Day 2:
  - ◆ Detailed studies of the “softkiller” approach in the context of HGICAL
    - eta-dependent particle removal: small improvement  $\sim 5\%$  on response
      - Still far from optimal for low-energy pions [ $\sim 20\text{-}50$  GeV]
  - ◆ Set up machinery to include timing information for the layer clusters
    - mainly coding -> not plots for today
- Goal for Day 3:
  - ◆ Exploit information from these two methods and present some first performance plots