Clustering and tracking in dense environments with the ATLAS ITk

- In the core of high-pt jets, silicon clusters can merge
- Cluster merging affects
  - Tracking quality
  - Tracking efficiency
- Merged clusters identified and split with current ATLAS ID

For HL-LHC ATLAS will get a new tracker
- Better granularity
- Expected tracking performance in dense environments?

Teaser: $d_0$ residual
- $d_0 - d_0^{\text{truth}}$
References


[3] ATLAS Collaboration, Clustering and Tracking in Dense Environments with the ATLAS Inner Tracker for the High-Luminosity LHC, ATL-PHYS-PUB-2023-022