

## Resolving b-jet substructure via the aggregation of the decay products from heavy hadrons

*Tuesday, 30 July 2024 16:40 (20 minutes)*

The substructure of bottom quark jets is of substantial interest both in terms of understanding radiation emitted from heavy quarks, where mass effects are important, as well as in the study of decays of massive (known and sought) particles into heavy quarks. Unfortunately, the decays of b hadrons, which are typically cascading, obscure the parton level branching, by filling the radiative dead cone. To circumvent this, one may study exclusive b-hadron decays, but one then sacrifices the vast majority of the b-jet cross section. We have implemented a technique to partially reconstruct the b-hadrons by aggregating their charged hadron decay products. We show that for common substructure variables like the groomed soft-drop radius, the sensitivity to the underlying parton splitting is vastly improved.

**Primary authors:** KALIPOLITI, Lida; LIAO, hongbo

**Presenter:** KALIPOLITI, Lida

**Session Classification:** Heavy Flavours

**Track Classification:** Heavy Flavours