



Likelihood calibration

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Introduction

- ZZ old PDF:
 - ZZ events at $\sqrt{s} = 500$ GeV
 - Old clustering (Mips + Clumps) algorithm before introducing DTree



Algorithm comparison

- ZZ new PDF:
 - ZZ events at $\sqrt{s} = 500$ GeV
 - Current baseline Dtree sub-clustering algorithm as used for PFA

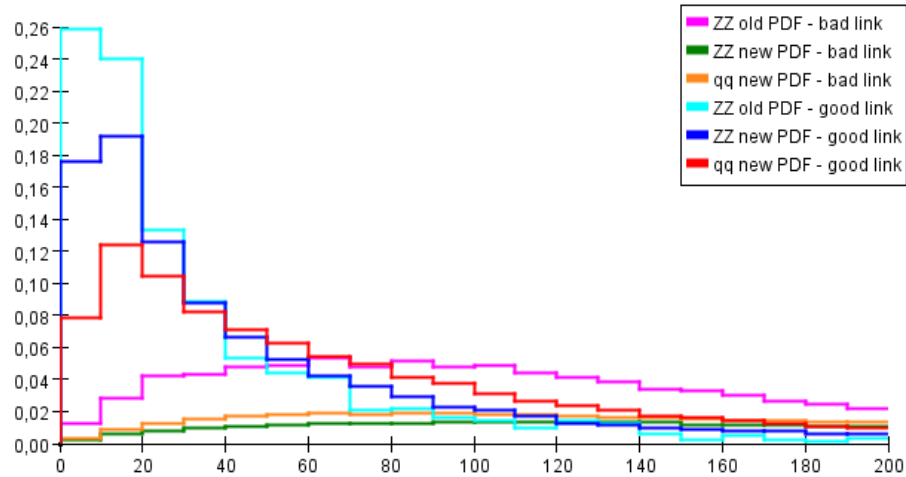


Energy spectrum comparison

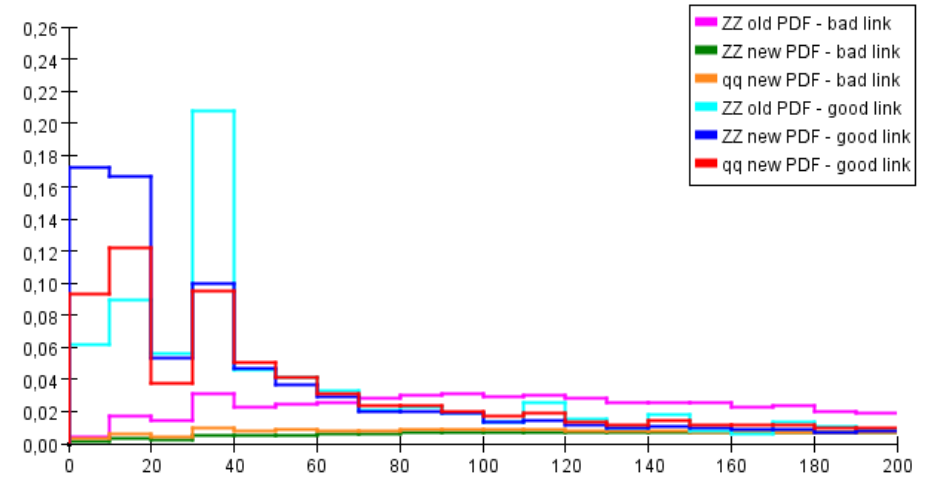
- qq new PDF:
 - qq events at $\sqrt{s} = 500$ GeV
 - Current baseline Dtree sub-clustering algorithm as used for PFA

PDF ($\sqrt{s} = 500$ GeV)

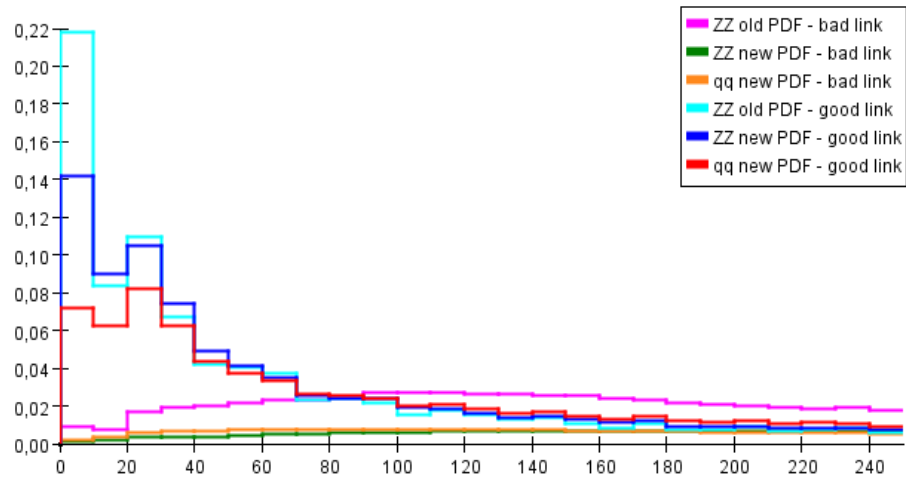
Clump To Clump DOCA



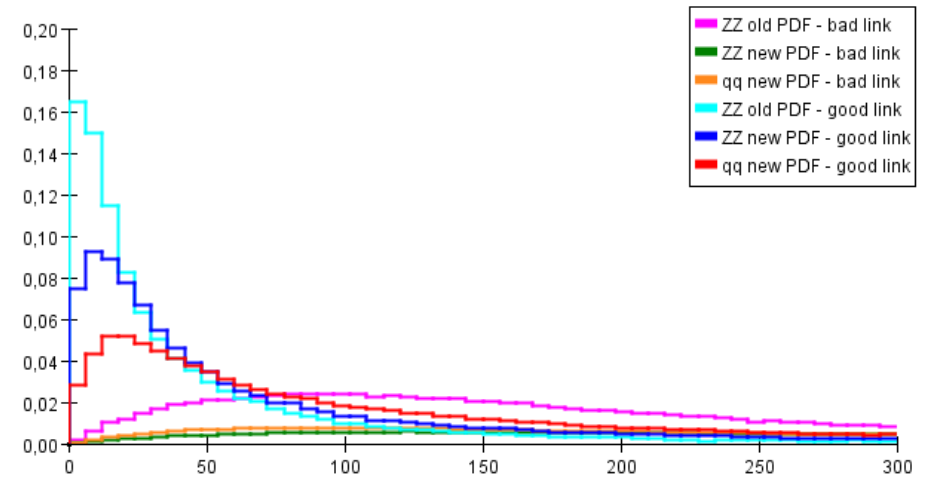
Clump To Clump MinDistance



Mip To Clump MinDistance

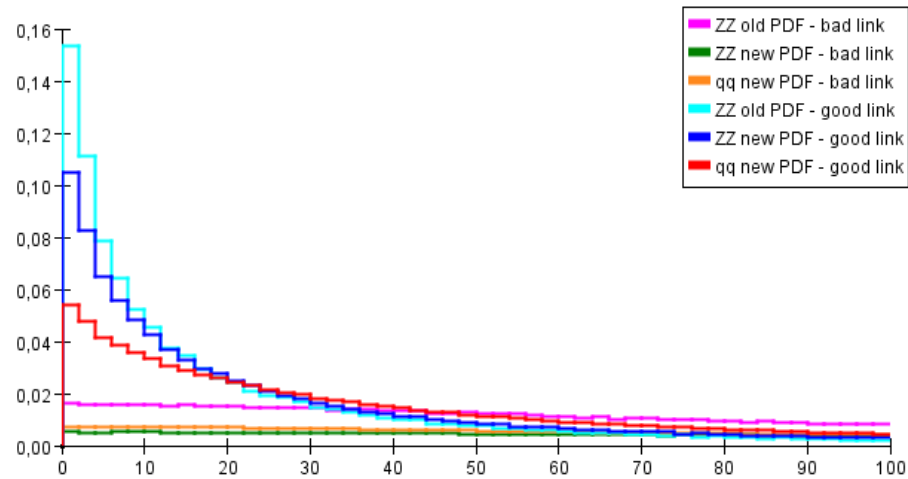


Mip To Clump DOCA

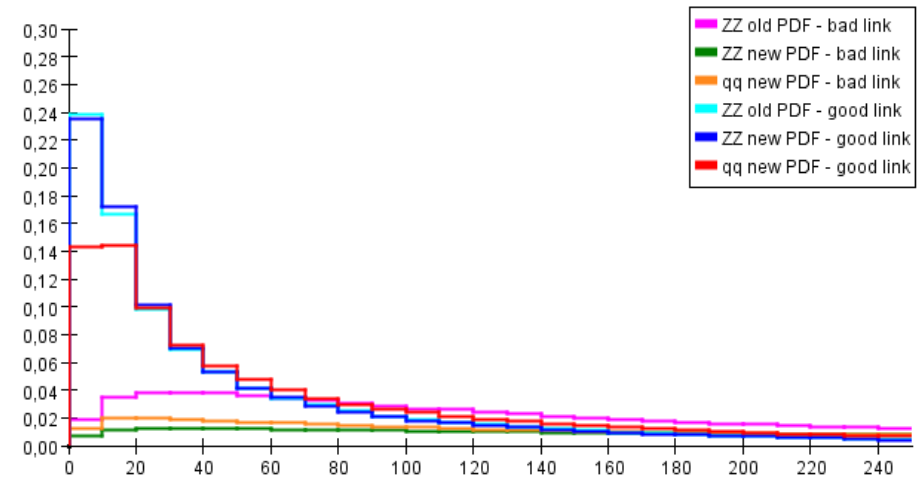


PDF ($\sqrt{s} = 500$ GeV)

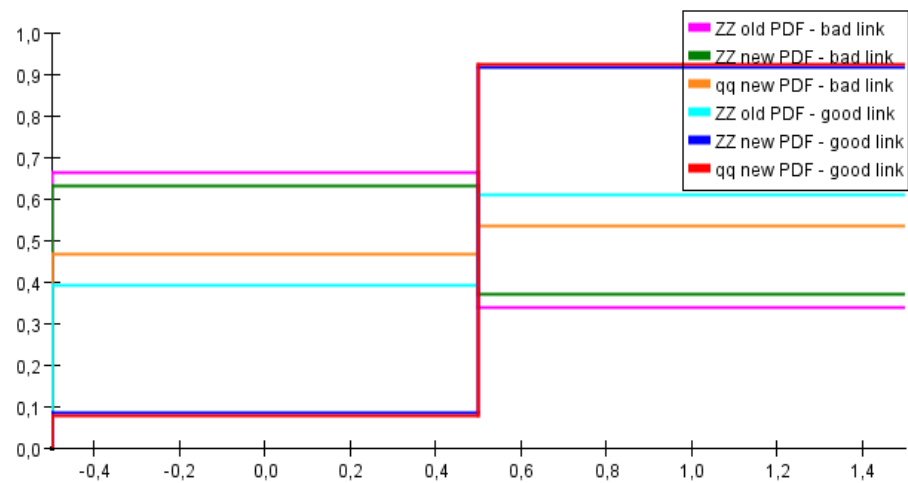
Mip To Mip DOCA



Mip To Mip SmallestDistanceToPOCA

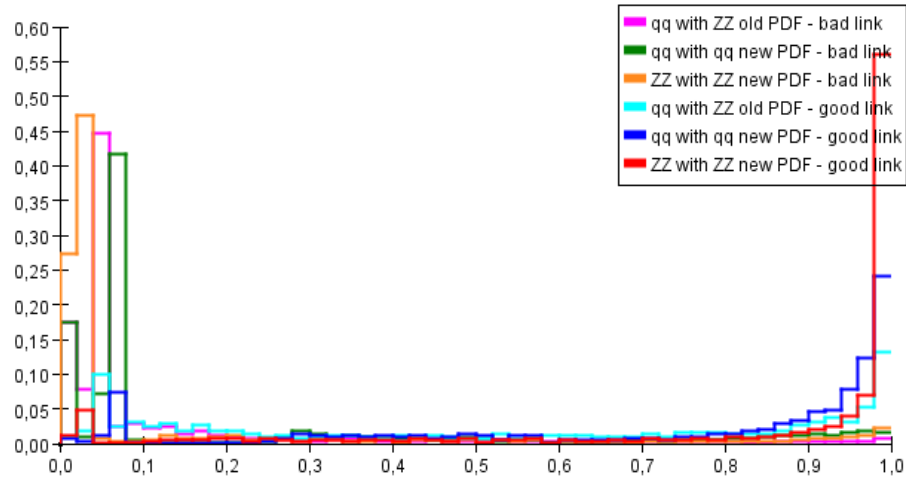


Mip To Mip POCAInCalorimeter

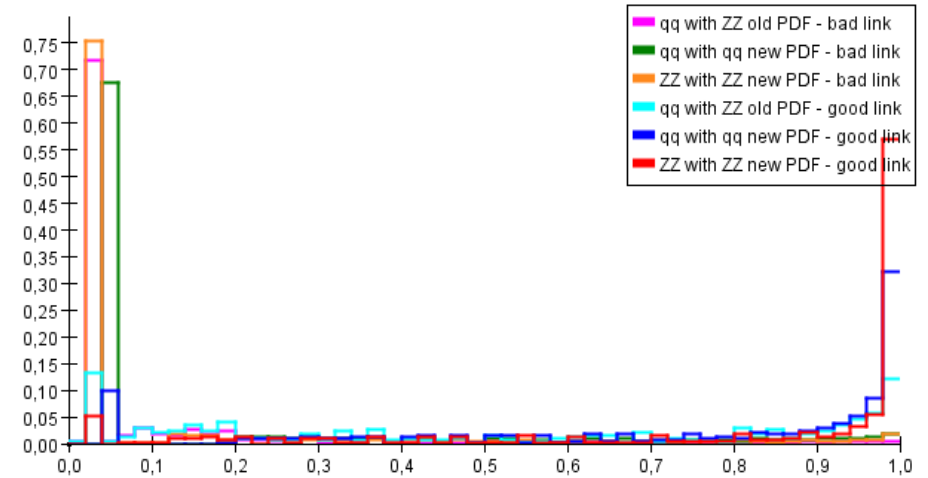


Likelihood ($\sqrt{s} = 500 \text{ GeV}$)

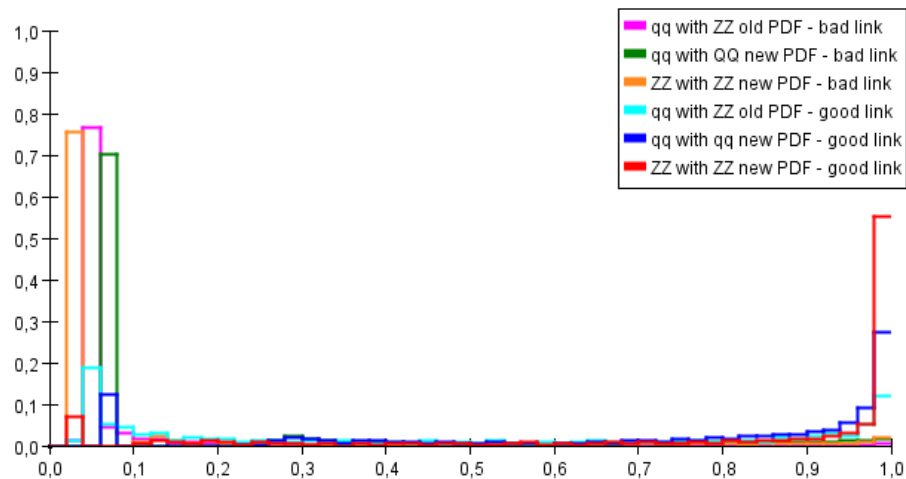
AnyCluster To AnyCluster - Likelihood



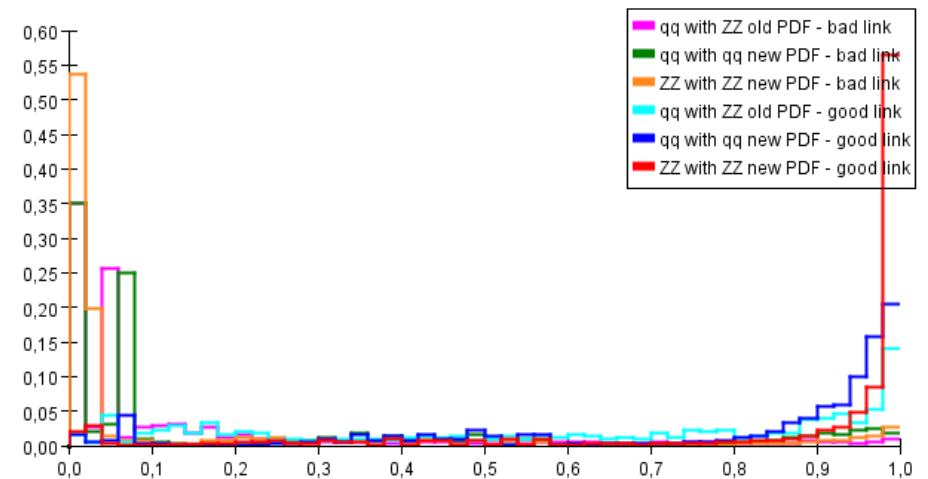
Clump To Clumps - Likelihood



Mip To Clump - Likelihood



Mip To Mip - Likelihood



Future plan

- Likelihood: should include maximum possible information
- Scoring & shower building:
 - First iteration:
 - Skeleton (simultaneous building of tracks)
 - Tight criteria
 - High purity
 - Reasonable efficiency
 - Second iteration:
 - Criteria can include information based on the first iteration
 - Increasing the efficiency
 - Adding the isolated sub-clusters
 - Adding the ambiguous sub-clusters

- The criteria of the score depends from the way that it is used in the shower building

- Both should be optimized at the same time

Example

