# Session I - What is a quenched jet - Guilherme
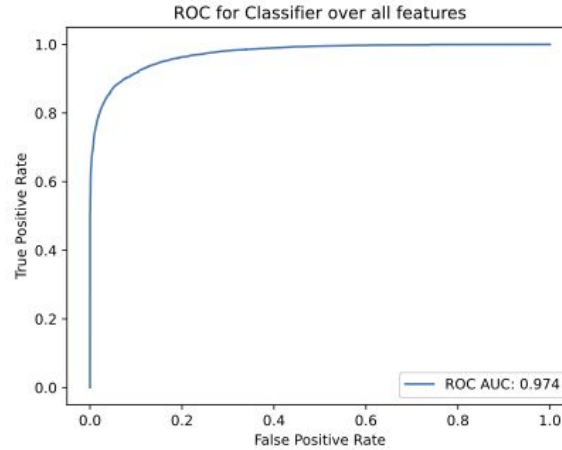
Definition: *jet that has been modified* *through interaction* *with QGP*

- Modifications are seen in most observables (in distributions)
- An old problem: many jets within reconstructed pt range are unmodified
- Can we tell, on a jet-by-jet basis, if a jet is quenched?
  - Quenched jets resemble in most unquenched jets
  - What information is needed to identify quenched jets? Can it be done?
- If a machine can learn, then information exists within reconstructed jets that allows for discrimination
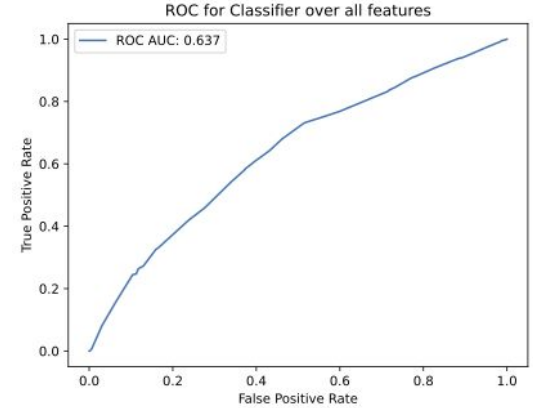
Quenching or contamination ?

ROC for Classifier over all features — ROC AUC: 0.697
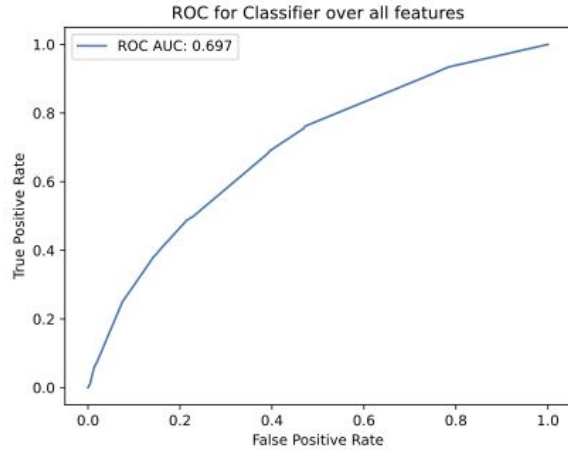
AA no medium response vs. pp
Decent discrimination

ROC for Classifier over all features — ROC AUC: 0.974

AA with medium response,
embedded and subtracted
Remarkable discrimination
[closest to exp?]

ROC for Classifier over all features — ROC AUC: 0.637

AA with medium response,
embedded and subtracted
pp embedded and subtracted
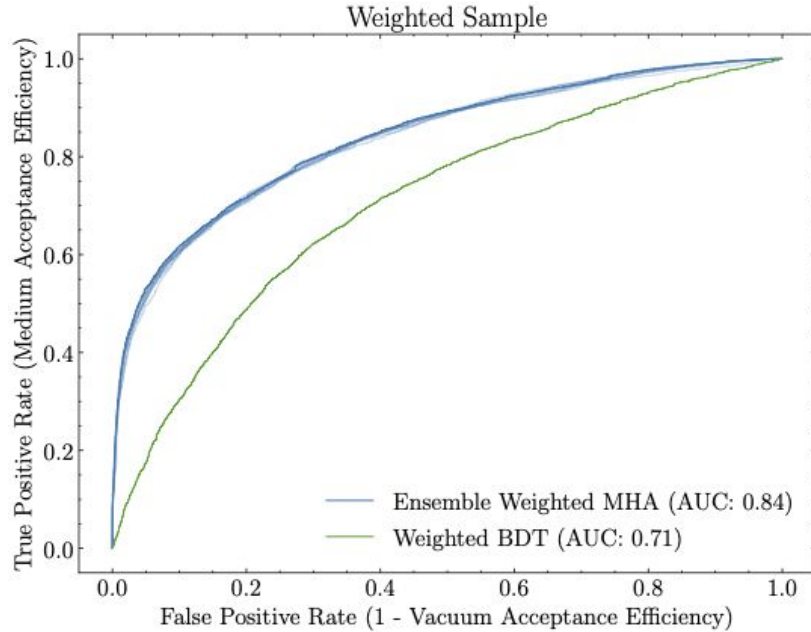[true quenching]

Based on large [~30] set of observables

Is more information better ?
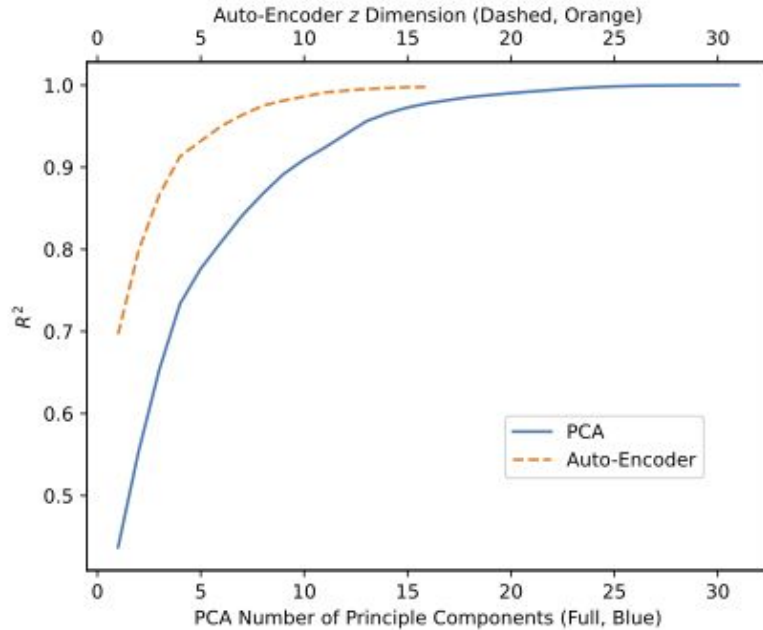
- Information contained in observables is highly redundant [~5 independent quantities encode all info of ~30 observables]

Is more information better ?

Weighted Sample

- Discrimination from observables much lower than discrimination from jets as lists of 4-mom of constituents [full information]

Can we tell a quenched jet apart from an unquenched one ?

How ?