

Linear jet tagging with the energy flow basis (15'+5')

Tuesday, December 12, 2017 10:00 AM (20 minutes)

In this talk, I will demonstrate the linear power of Energy Flow Polynomials (EFPs) by applying linear classification methods to quark/gluon discrimination, boosted W tagging, and boosted top tagging, achieving performance that compares favorably to other jet representations and modern machine learning approaches. I will briefly describe novel algorithms that make use of the graph-theoretic interpretation of EFPs to improve their computational complexity over that of an arbitrary N -particle correlator, making the computation of a large number of EFPs highly feasible. I will discuss how this linear energy flow basis provides an alternative to “black-box” machine learning techniques for fully combining the (IRC-safe) information in jet observables, replacing complex models by convex linear methods with few or no hyperparameters.

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