

A complete, linear basis for (machine) learning jet substructure (15'+5')

Tuesday, December 12, 2017 9:40 AM (20 minutes)

In this talk, I will present Energy Flow Polynomials (EFPs), a novel class of jet substructure observables that form a discrete, linear basis of all infrared- and collinear-safe information in a jet. The EFPs are multiparticle energy correlators with a powerful graph-theoretic interpretation which encompass and generalize the analytic structures present in many existing classes of jet substructure observables. I will show that many common jet substructure observables are exact linear combinations of EFPs. Further, I will demonstrate the linear, IRC-safe spanning nature of EFPs by performing linear regression with EFPs on a collection of IRC-safe and unsafe observables in a variety of jet contexts.

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