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Jet SIFT-ing

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We introduce a new jet clustering algorithm (SIFT: Scale-Invariant Filter Tree), which does not impose a fixed cone size or associated scale on the event. The proposed construction maintains excellent object discrimination for very collimated partonic systems, while asymptotically recovering favorable behaviors of the standard anti-KT algorithm. It is intrinsically suitable (without secondary declustering) for the tagging of highly boosted objects, and applicable to the study of jet substructure. Additionally, it is resilient to pileup, via a concurrent filter on soft wide-angle radiation applied within the primary clustering phase.

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