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Uproot and Awkward Array tutorial

Tuesday, July 6, 2021 4:30 PM (1 hour)

Uproot provides an easy way to get data from ROOT files into arrays and DataFrames, and Awkward Array lets you manipulate arrays of complex data types. This tutorial starts at the beginning, showing how an Uproot + Awkward Array (+ Hist + Vector) workflow differs from ROOT based workflows, how to extract objects and arrays from ROOT files, how to apply cuts and restructure arrays, and it ends with a walk-through of advanced topics: gen-reco matching and resolving combinatorics in $H \longrightarrow ZZ \longrightarrow 4\mu$. Numba, a just-in-time compiler for Python, is used in physics examples involving Lorentz vectors, and I'll talk about best practices for speeding up computations and taming complexity by doing things one step at a time.

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