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Pineline: Industrialization of High-Energy Theory Predictions

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We present a collection of tools automating the efficient computation of large sets of theory predictions for high-energy physics. Calculating predictions for different processes often require dedicated programs. These programs, however, accept inputs and produce outputs that are usually very different from each other. The industrialization of theory predictions is achieved by a framework which harmonizes inputs (runcard, parameter settings), standardizes outputs (in the form of grids), produces reusable intermediate objects, and carefully tracks all meta data required to reproduce the computation. Parameter searches and fitting of non-perturbative objects are exemplary use cases that require a full or partial re-computation of theory predictions and will thus benefit of such a toolset.

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