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The Scikit-HEP project - overview and prospects

Tuesday, 5 November 2019 12:00 (15 minutes)

Scikit-HEP is a community-driven and community-oriented project with the goal of providing an ecosystem for particle physics data analysis in Python. Scikit-HEP is a toolset of approximately twenty packages and a few "affiliated"packages. It expands the typical Python data analysis tools for particle physicists. Each package focuses on a particular topic, and interacts with other packages in the toolset, where appropriate. Most of the packages are easy to install in many environments; much work has been done this year to provide binary "wheels"on PyPI and conda-forge packages. The uproot family provides pure Python ROOT file access and has been a runaway success with over 15000 downloads per month. AwkwardArray provides a natural "Jagged" array structure. The iMinuit package exposes the MINUIT2 C++ package to Python. Histogramming is central in any analysis workflow and has received much attention, including new Python bindings for the performant C++14 Boost::Histogram library. The Particle and DecayLanguage packages were developed to deal with particles and decay chains. Other packages provide the ability to interface between Numpy and popular HEP tools such as Pythia and FastJet. The Scikit-HEP project has been gaining interest and momentum, by building a user and developer community engaging collaboration across experiments. Some of the packages are being used by other communities, including the astroparticle physics community. An overview of the overall project and toolset will be presented, as well as a vision for development and sustainability.

Consider for promotion

Yes

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