Packaging the HEP simulation stack on conda-forge

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Project context

One common toolchain used in high energy physics for simulation is:

- MadGraph5_aMC@NLO,
- PYTHIA8,
- Delphes.

Installing these tools can be challenging at times, especially for new users.

The proposed solution

The conda-forge packaging infrastructure system and package registry allows for distribution of complex binaries across multiple platforms through the Conda package management ecosystem.

Motivation

As ROOT and the PYTHIA8 library with Python bindings have been successfully packaged and distributed on conda-forge it should be possible to package all the components of the HEP simulation stack and distribute them on conda-forge. Packaging these components will allow them to have the ability to not only be installed as individual tools, but also be installed together in a coherent package environment.

Goal of the project

This project will attempt to package as many of the dependencies of the HEP simulation stack on conda-forge as possible

Week 1-2

Refresh knowledge, familiarize myself with software development tooling (like CI/CD, Git, etc) and packaging build systems (especially their dependency management) that will be used for a project. Learn about tools that will be packaged and how conda-forge works (creating package recipes, overall build infrastructure, etc). Create a developer environment with all the required tooling on a local machine.

Week 3-4

Add a conda-forge feedstock for Python 3 bindings for the HepMC2 in collaboration with Chris Burr, the maintainer for the HepMC2 conda-forge feedstock.

Week 5-6

Add a conda-forge feedstock for Python 3 bindings for the HepMC3 in collaboration with Chris Burr, the maintainer for the HepMC3 conda-forge feedstock.

Week 7-8

Package LHAPDF on conda-forge.

Week 9-10

Package FastJet on conda-forge (stretch goal).

Week 11

Working with the maintainers of the packaged tools to help them update their documentation and examples to show the conda-forge distributed tools.

Week 12

Summary report and slides of achieved results.

Timeline of the planned work

3 June - 22 August

Thank you for listening!