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LCG MCDB and HepML, next step to unified interfaces of Monte-Carlo Simulation

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In this talk we present a way of making Monte-Carlo simulation chain fully automated. Last years there was a need for common place to store sophisticated MC event samples prepared by experienced theorists. Also such samples should be accessible in some standard manner to be easily imported and used in experiments' software.

The main motivation behind the LCG MCDB project is to make sophisticated MC event samples and their structured descriptions available for various groups of physicists working on LHC. All the data from MCDB is accessible for end-users in several convenient ways from Grid, on the Web and via application program interface.

Developed in collaboration of LCG MCDB and CEDAR teams and several MC generator authors, HepML (High Energy Markup Language) is aimed be a unified XML description of event samples simulated by Matrix Element (ME) generators. The other main purpose of HepML is to keep MC generation parameters for further MC generators tuning.

It is possible to extend HepML as an XML standard to keep necessary information for the different levels of simulation in HEP, from theoretical model to a simulation of detector responds. HepML provides the possibility to use and develop many standard tools for the comparison, validation, graphical representation of the results and create transparent unified interfaces for the different software in HEP on the modern level of Computer science.

Using MCDB and HepML together gives a possibility of automation of such significant part of MC simulation chain as correct transfer physics events from Matrix Element generators to Shower generators and then to detector simulation. Such machine-driven manner allows to avoid errors coming from human factor (physical data are storing with complete unified description directly from MC generator), save a lot of time and efforts for end users of trusted and verified shared MC samples.

LCG MCDB is developing within CERN LCG Application Area Simulation Project.

This talk is given on behalf of the Generator Services subproject.

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