Particle Event Generator: A Simple-in-Use System PEGASUS

Parton-level Monte-Carlo event generator for proton-proton, proton-antiproton and electron-proton collisions applying Transverse Momentum Dependent (TMD) parton densities in a proton.

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Abstract

PEGASUS is a parton-level Monte-Carlo event generator designed to calculate cross sections for a wide range of hard QCD processes at high energy proton-proton, proton-antiproton and electron-proton collisions, which incorporates the dynamics of transverse momentum dependent (TMD) parton distributions in a proton. Being supplemented with off-shell production amplitudes for a number of partonic subprocesses and provided with necessary TMD gluon density functions, it produces weighted or unweighted event records which can be saved as a plain data file or a file in a commonly used Les Houches Event format. A distinctive feature of PEGASUS is an intuitive and extremely user friendly interface, allowing one to easily implement various kinematical cuts into the calculations. Results can be also presented “on the fly” with built-in tool PEGASUS Plotter.

News

- 11.09.2023 PEGASUS 1.1.00 is released.