

MCBooster: a library for fast Monte Carlo generation of phase-space decays in massively parallel platforms.

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MCBooster is a header-only, C++11-compliant library for the generation of large samples of phase-space Monte Carlo events on massively parallel platforms. It was released on GitHub in the spring of 2016. The library core algorithms implement the Raubold-Lynch method; they are able to generate the full kinematics of decays with up to nine particles in the final state. The library supports the generation of sequential decays as well as the parallel evaluation of arbitrary functions over the generated events.

The output of MCBooster completely accords with popular and well-tested software packages such as GENBOD (W515 from CERNLIB) and TGenPhaseSpace from the ROOT framework. MCBooster is developed on top of the Thrust library and runs on Linux systems. It deploys transparently on NVidia CUDA-enabled GPUs as well as multicore CPUs.

This contribution summarizes the main features of MCBooster. A basic description of the user interface and some examples of applications are provided, along with measurements of performance in a variety of environments.

Tertiary Keyword (Optional)

Analysi tools and techniques

Secondary Keyword (Optional)

High performance computing

Primary Keyword (Mandatory)

Event generators

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