



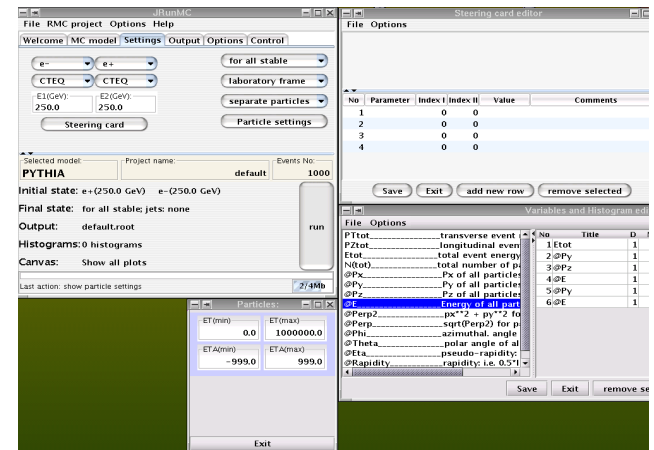
RunMC status

S.Ch ekano v (ANL/DESY)

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Introduction

- ❑ C++/ROOT framework for running FORTRAN Monte Carlo (MC) model:
 - ✓ PYTHIA, HERWIG, ARIADNE, CASCADE, LEPTO,
 - ✓ AROMA, RAPGAP, PHOJET
- ❑ Can be used for MC validations, tuning, comparisons, calculations of correction factors etc.
- ❑ Modern C++ libraries: CLHEP, jet algorithms, event shapes ..
- ❑ Fully integrated with the C++ analysis environment (ROOT)
- ❑ JAVA graphical user interface (GUI)
- ❑ Loadable examples, fast detector simulations etc.

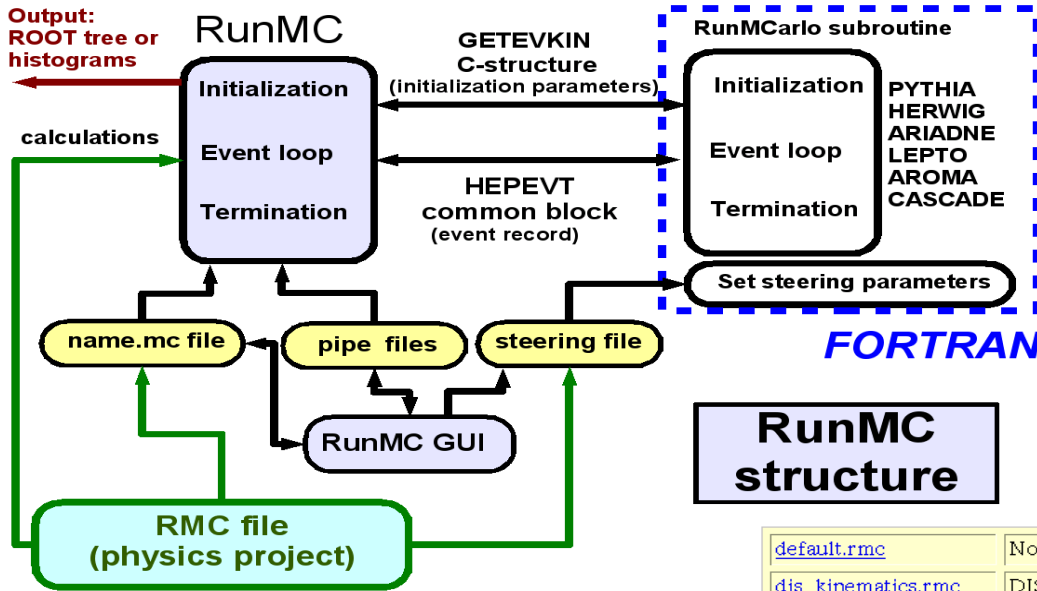


RunMC web page:

<http://projects.hepforge.org/runmc/>

(download, manual, presentations, example calculations etc.)

RunMC structure



RunMC structure

RMC files (RunMC www page)

default.rmc	No any MC settings and physics calculations. Only dummy functions
dis_kinematics.rmc	DIS kinematic variables for HERA (Q2.x, etc), SC
charm_dis.rmc	Studies of D* cross sections in DIS (HERA), SC
dis_strange.rmc	Strangeness production (cross sections for K0s, Lambdas etc), SC
baryons_DIS.rmc	Look at kinematics of baryons in DIS at HERA, SC
jets_HERA.rmc	Jets at HERA using longitudinally-invariant KT algorithm (Breit frame), SC
jets_LHC.rmc	Kt jets at LHC with charm, SC
jets+charm_LHC.rmc	Kt jets at LHC with charm, SC
event_shapes.rmc	Event shape studies, SC
par-had-jetLHC.rmc	Jet parton-to-hadron corrections, SC
sbumps.rmc	Search and identification of resonances, SC
hztool.rmc	HZTOOL calculations (v2.0), SC
hztoolv3.rmc	HZTOOL calculations (v3.0), SC
view3d.rmc	Look at 3D pictures of ttbar production at NLC (Geant imitation), SC
view3DjetsHERA.rmc	Look at 3D pictures of Kt jets at HERA (Geant imitation), SC
view3DjetsLHC.rmc	Look at 3D pictures of Kt jets at LHC (Geant imitation), SC

S.C.
Comp. Phys. Comm. 173 (2005) p.115-198

Progress since May 2006 -I

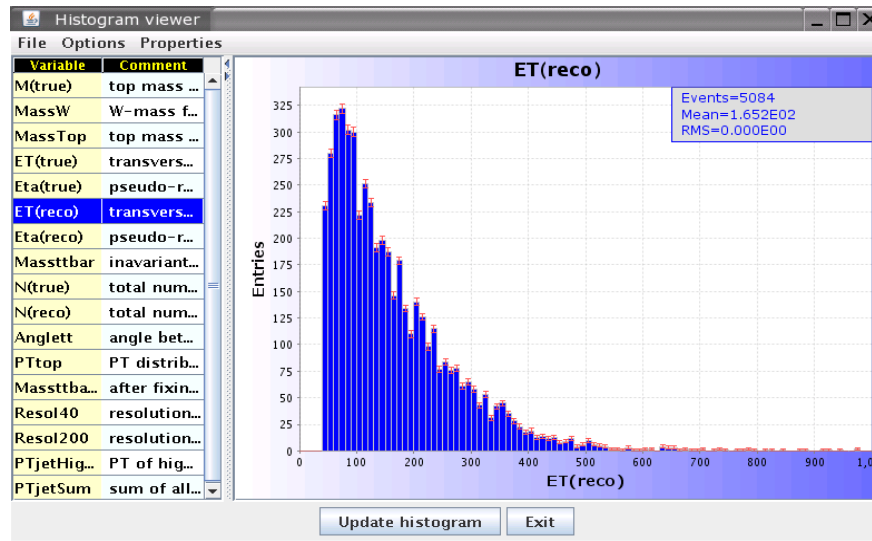
- ❑ Code was modified in order to compile RunMC using modern compilers
- ❑ Removed dependence on CERNLIB
 - ✓ CERNLIB not supported for gfortran + gcc4.1
 - ✓ but many MC models still use CERNLIB functions
- ❑ CERNLIB was refactored:
 - ✓ removing parts which are too difficult to compile using gfortran:
 - zebra, hbook, higz, paw ..
 - ✓ keep only math functions necessary for “legacy” MC models:
 - keep most of functions from cfortran mathlib packlib packages
 - drop support for many architectures, keep only linux/cygwin
- ❑ Stand-alone version of CERNLIB-lite is (CERNIBlite.tgz, 1.7Mb, tgz):
 - ✓ <http://www.desy.de/~chekanov/cernlib/>
- ❑ Now it is included in RunMC and compiled automatically together with RunMC

Progress since May 2006 - II

- ❑ Most serious issue: dependence on old FORTRAN PDFLIB library
- ❑ Now RunMC uses LHAPDF (Les Houches Accord PDF Interface)
 - ✓ maintained by M.Whalley (<http://projects.hepforge.org/lhapdf/>)
 - ✓ included to RunMC for easy integration and compilation
 - ✓ Modern PDFs are available: CTEQ6, MRST04
- ❑ Multiuser support:
 - ✓ static/shared libraries can be moved to a central location (/usr/local/). The user have access only to a small part (~ several Mb) of the RunMC which is sufficient for compilations

Progress since May 2006 -III

- New feature: a JAVA histogram browser:
 - ✓ Before RunMC could monitor only up to 8 histograms
 - ✓ Now all histograms can be viewed during event generation
 - ✓ Implementation details:
 - ROOT/C++ histograms mapped to memory
 - JAVA reads them using JNI,
 - a JAVA canvas based on jfreechart shows them in a separate window
- Works on Suse8.2, FC5, FC6. But it was not carefully tested yet



- ❑ New 4.2 β version of RunMC is available:
- ❑ <http://projects.hepforge.org/runmc/news.html>
- ❑ Package size is 45 Mb (before - 20 Mb). Now includes CERNLIB-lite and LHAPDF with all PDFs (large size!)
- ❑ Was tested on Suse 8.2, FC6, FC8. Suse 10.2 may have problems with termcap library
- ❑ I'm going to drop support for Windows/cygwin.