



# Book-keeping

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## Database model

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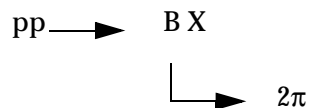
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### Abstract

This is a proposal for a model.

### Generation of MC data

The following picture indicates very schematically how MC events are generated, for example



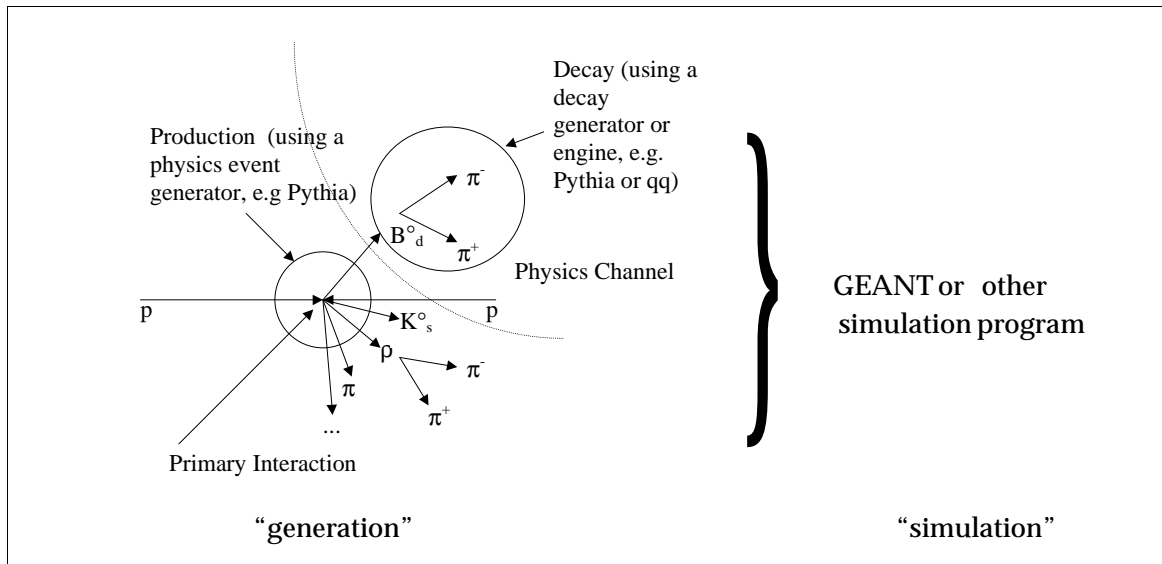


Figure 1

## Glossary

- **Beam angle**  
Angle of the beam used.  
The beam angle is an attribute of “runset”.
- **Beam energy**  
Value of the beam energy used.  
The beam energy is an attribute of “runset”.
- **Dataset**  
Data of the same type and format, created in a single job and stored in a single file. The data in the dataset consists of events. Events are grouped in a run. One dataset contains several runs. A dataset resides on tape. A dataset should be roughly 1 Gbyte and contain 1000 events.
- **Datatype**  
For the moment, runset will contain the following types of data (**GEN**, **MC** and **DST**):
  - **GEN**: event after generation
  - **MC**: event after simulation
  - **DST**: event after digitisation and reconstruction
 The datatype is an attribute of “runset”.

- **Decay generator code**  
A number that identifies the decay generator that was used to produce a dataset. In sich, at present this is 4001.  
The decay generator code is an attribute of “**physics and generator data**”.
- **Decay generator name**  
Name that identifies the decay generator that was used to produce a dataset. For example, Pythia 6.125, qq, or a home-made generator.  
The decay generator name is an attribute of “**physics and generator data**”.
- **Description of the generation**  
Description of a primary interaction and decay generators. For example, Pythia 6.125 for production with  $p_T$  cut = 3.47 GeV and decay with qq. Today, the embedded Pythia parameters are stored in pythia.cdf.  
The description of the generation is an attribute of “**physics and generator data**”.
- **Event Description**  
The event description is an attribute of “runset”.
- **Event Type**  
The event type is an attribute of “runset”.
- **File sequence number**  
The file sequence number occupied by a dataset on a tape.  
The file sequence number is an attribute of “**runset**”.
- **Filesize**  
Size of the file on tape in MegaBytes. For example, 1100.  
The filesize is an attribute of “**runset**”.
- **First Event**  
First event of a runset  
The first event is an attribute of “**runset**”.
- **Generator parameter name**  
Name of a parameter used by a generator. For example, a  $p_T$  cut. Today, the embedded Pythia parameters are stored in pythia.cdf.  
The generator parameter name is an attribute of “**generator parameters**”.
- **Generator parameter value**  
Value of a given generator parameter. Example for  $p_T$  cut = 3.47 GeV.  
The generator parameter value is an attribute of “**generator parameters**”.
- **Kinematic parameters**  
Cuts can be imposed on the momentum of a particle of interest ( $p_{min}$ ,  $p_{max}$ ).  
Geometrical and kinematic parameters are stored in a table called “**kinematics**”.

- **Kinematic parameter name**  
Name of a kinematic parameter. For example, Phimax.  
The kinematic parameter name is an attribute of “**kinematics**”.
- **Kinematic parameter value**  
Value for a kinematic parameter. For example, 0.  
The kinematic parameter value is an attribute of “**kinematics**”.
- **Laboratory**  
A number indicating the name of the laboratory and the platform where the production was done, or where the real data was created.  
Possible values are:

Table 1

ID	Centre	Platform	OS	Comment
1	CERN,SP,RSBATCH	IBM	AIX	
2	CERN/CSF	IBM	AIX	not likely to be used any more
3	Lausanne/Alpha	Digital		not likely to be used any more
4	Heidelberg/Alpha	Digital		not likely to be used any more
5	RAL/CSF			
6	Lyon			
7	CERN/CS2			not likely to be used any more
8	CERN/PCSF	Intel	NT	
9	CERN/LHCb LSF cluster	Intel	NT	PC corridor cluster

- **Last Event**  
This is the last event of a runset  
The last event is an attribute of “**runset**”.
- **Luminosity**  
Luminosity of the beam used.  
The luminosity is an attribute of “**runset**”.
- **Number of events**  
Number of events in the runset. The number of events should normally be 1000 per run.  
The number of events is an attribute of “**runset**”.
- **Physics channel**  
The physics channel defines the final state of a pp interaction. For example, minimum bias (all possible events), bb inclusive (all possible events, with a B; for example in sicc this is indicated by the event type 350000),  $B_d \rightarrow 2\pi X$ , etc.  
The physics channel is an attribute of “**physics and generator data**”.

- **Primary interaction generator code**  
A number that identifies the primary interaction generator that was used to produce a dataset. In sicb, at present this is 4001.  
The primary interaction generator code is an attribute of “**physics and generator data**”.
- **Primary interaction generator name**  
Name of the primary interaction generator. For example, Pythia.  
The primary interaction generator name is an attribute of “**physics and generator data**”.
- **Production year**  
Year and version of the detector geometry. For example, 99-07-1.  
The production year is an attribute of “**physics and generator data**”.
- **Program version**  
Version number of the program. For example, 200.  
The program version is an attribute of “**runset**”.
- **Reconstruction version**  
Version number of the reconstruction program. For example, 1.2.  
The reconstruction version is an attribute of “**runset**”.
- **Run**  
A run is a collection of events.
- **Run Description**  
For a run, we will describe how this run have been generated.  
The run description is an attribute of “**runset**”.
- **Run number**  
Number of the run. A run number is unique. For example, 1002.  
The run number is an attribute of “**runset**”.
- **Run Type**  
The run type is an attribute of “**runset**”.
- **Seed name**  
Name of the random number seed. For example, seed1, seed2 etc.  
The seed name is an attribute of “**runset**”.
- **Seed value**  
Value of the random number seed. For example, 123456789.  
The seed value is an attribute of “**runset**”.
- **Simulation version**  
Version number of the simulation program. For example, 4.  
The simulation version is an attribute of “**runset**”.

- **Tape location**  
Place where the tape can be found.  
Tape location is an attribute of “**runset**”.
- **Tape support**  
Support of the tape (redwood, CD-Rom, DLT,..).
- **Vertex smearing**  
The type of vertex smearing used.  
The vertex smearing is an attribute of “**runset**”.
- **Volume serial number**  
A unique number written onto the label of a magnetic tape. This number is used to call the tape up from the vault by the SHIFT system. For example, y21345.  
The volume serial number is an attribute of “**runset**”.

## Proposal for a database model for MonteCarlo

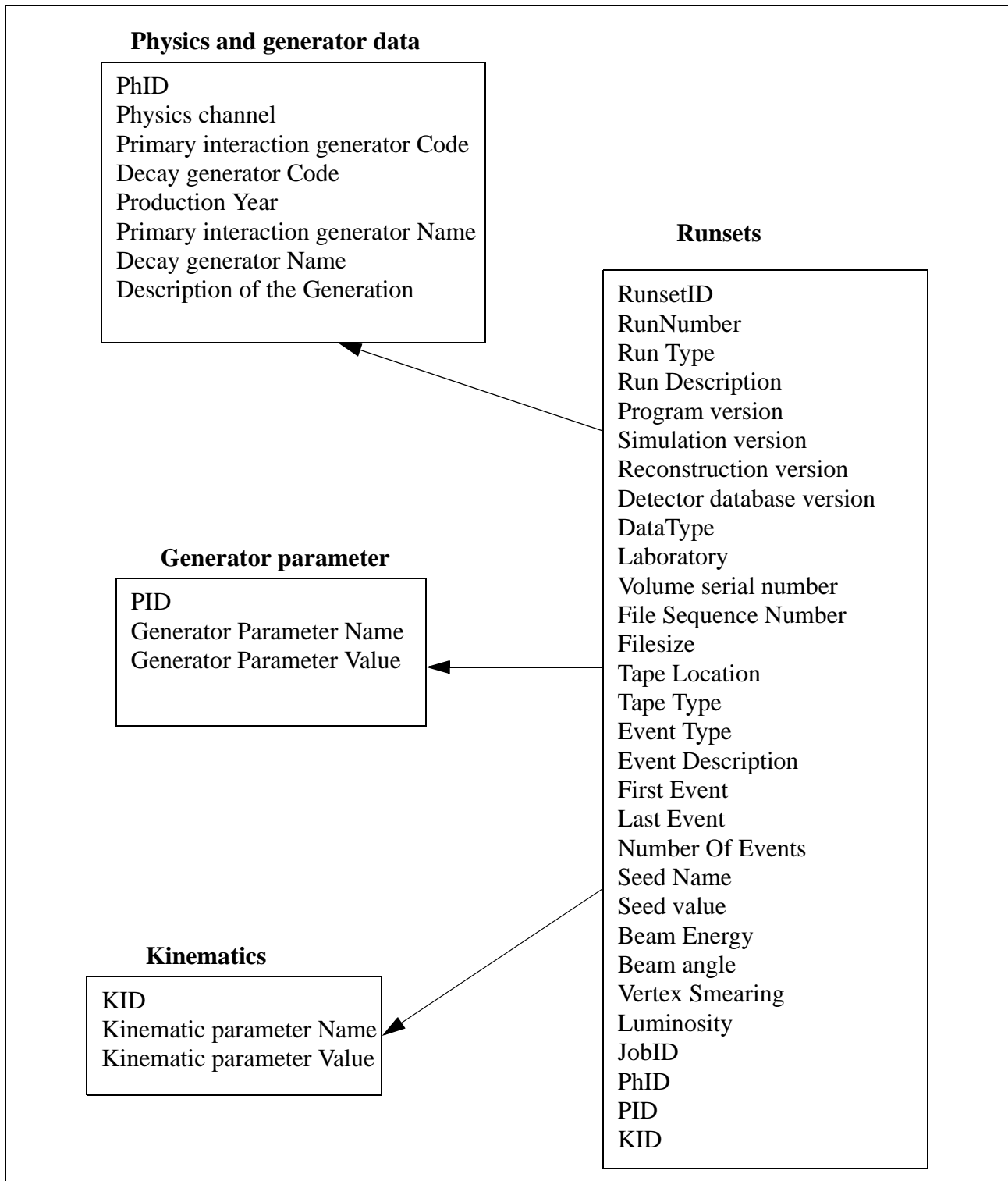


Figure 2

