Readiness for a production to be requested, current status

June 11, 2020

- **UrQMD data with Hadron Gas EoS**
- **vHLLE+UrQMD with two types of hydro EoS**
- **Our strategy when doing an official request for the production**

UrQMD data (mcDst), ncx.jinr.ru

/eos/nica/mpd/users/batyuk/mcDst/UrQMD/Hg

cms_4GeV/

10000 files x 1000 events = 10M

cms_7.7GeV/

10000 files x 1000 events = 10M

cms_9GeV/

10000 files x 1000 events = 10M

cms_11.5GeV/

10000 files x 1000 events = 10M

Naming convention:

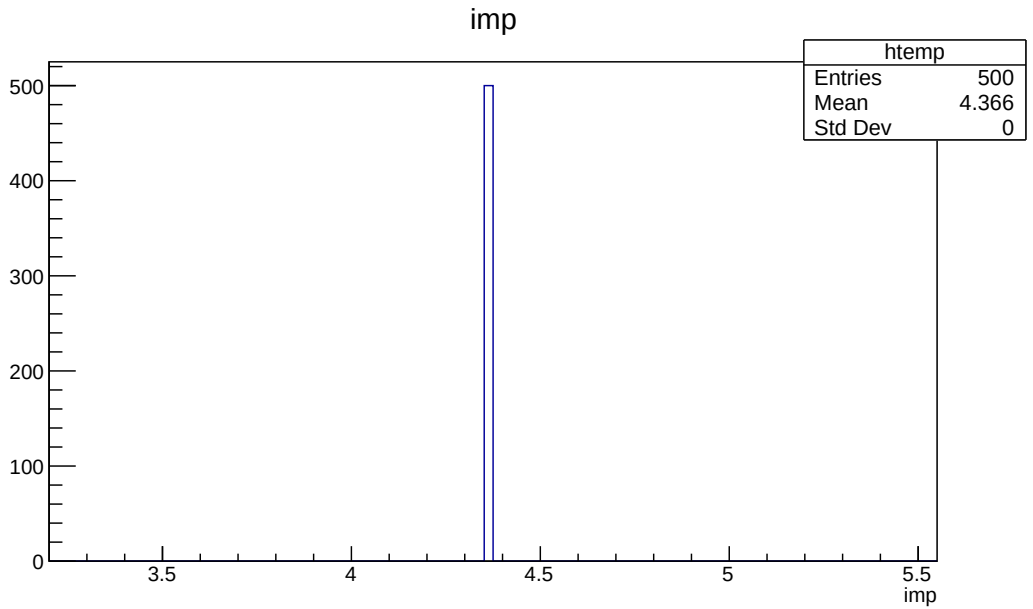
AuAu_ecm9GeV_EoS_Hg_0-14fm_1000ev_9997.mcDst.root

UrQMD data, ncx.jinr.ru

- All planned energies (4, 7.7, 9, 11.5 GeV) are available
- Each energy has 10M simulated events
- Ready for the production

vHLLE+UrQMD

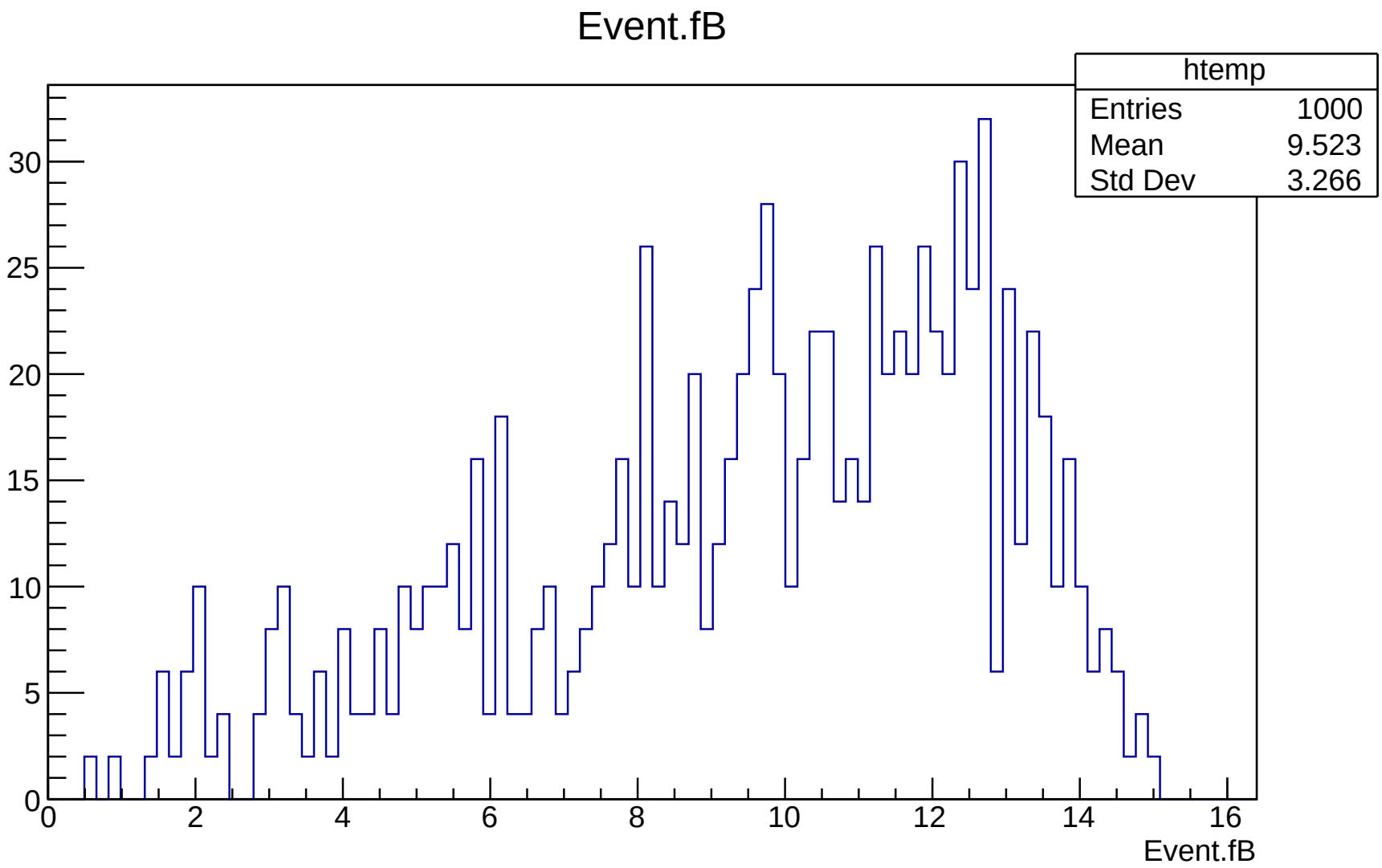
- I asked Arkadiy on already simulated sets of data. They are located in the storages of two clusters: ncx and Green Cube (GSI).
- Approximate numbers of events available with ncx are (after my calculations using the list of data directories that Arkadiy gave me):
  7.7 GeV, 1PT - 7.1M
  7.7 GeV, XPT - 6.5M
  11.5 GeV (XPT and 1PT) - not seen (calculated) yet due to lack of time
- To fulfil the desirable number of order of 10M per each energy and EoS the GSI data storage will be "grabbed":)
- Each set contains 500 events. Information on impact parameter saved from the UrQMD stage is available.
- All necessary instruments to produce the mcDst format are also ready.



- Is it possible to do a mix and more natural data structure using existing simulated data?

- Due to the chosen value of sampling, all events are presented by one value of impact
- Not so representative (convenient) for many studies sensitive to impact parameter

- A matrix of (500 files x 500 events per file) is considered.
- One has 500 different impacts and 500 events per each value of impact.
- The matrix is transformed in the following way:
  500 mcDst files with 500 entries per each file. Each mcDst has events with different impacts.
- The idea:
  One gets a full event (imp. + part. info) from the matrix and puts the event into the corresponding position of the output mcDst file
- Total number of mcDst is equal to 500. Each file contains 500 events.
- Two output mcDst's are merged into one containing 1000 events.



All impacts are presented in the output mcDst file

vHLLE+UrQMD data (mcDst), ncx.jinr.ru

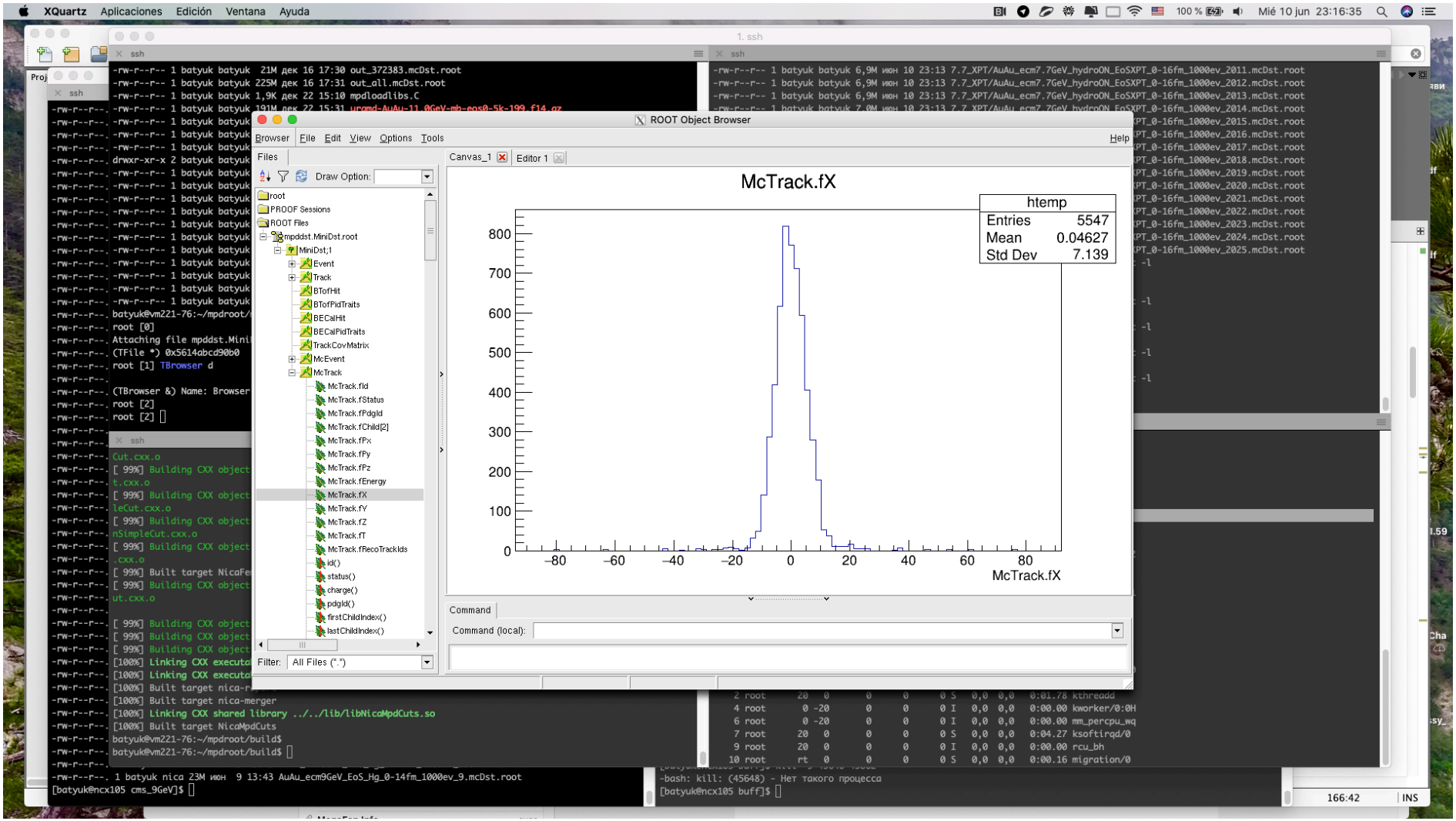
/eos/nica/mpd/users/batyuk/mcDst/vHLLE+UrQMD

cms_7.7GeV/1PT	cms_11.5GeV/1PT
cms_7.7GeV/XPT	cms_11.5GeV/XPT
7000 files x 1000 events = 7M	**0**
6500 files x 1000 events = 6.5M	**0**

Naming convention:

AuAu_ecm7.7GeV_hydroON_EoSXPT_0-16fm_1000ev_1247.mcDst.root

Quick glance at full chain (det. response + reco)



There are femtoscopy information from gen. tracks, impact params and so on in the output miniDst ...

Strategies on our future production:

- We ask for a production with one UrQMD energy ($\sqrt{s_{NN}}$ = 9 GeV)
- All detectors are included in macro/mpd/-geome-try_stage1.C

As planned before

- We ask for a production with four UrQMD energy ($\sqrt{s_{NN}}$ = 4, 7.7, 9, 11.5 GeV)
- All detectors are included in macro/mpd/-geome-try_stage1.C

It looks as a very long story:)

- We ask for a production with four UrQMD energy ($\sqrt{s_{NN}}$ = 4, 7.7, 9, 11.5 GeV)
- Only TPC and TOF are included in macro/mpd/-geome-try_stage1.C

May be this one?

Final remarks

- **To use the new mcDst sets one has to update the MpdRoot software. You will be notified as far as the updates are ready to get them.**
- **It looks that the previous sets of mcDst are not compatible with the newest version of MpdRoot**
- **TODO:**
  fulfil statistics requirements on vHLLE+UrQMD,
  prepare mcDst for HYDJET++,
  polish production motivation + corresponding scripts
  depending on our choice to be done ...