

EventView used to visually
show an event

1. Purpose of this software development
2. How this software works
3. How to use

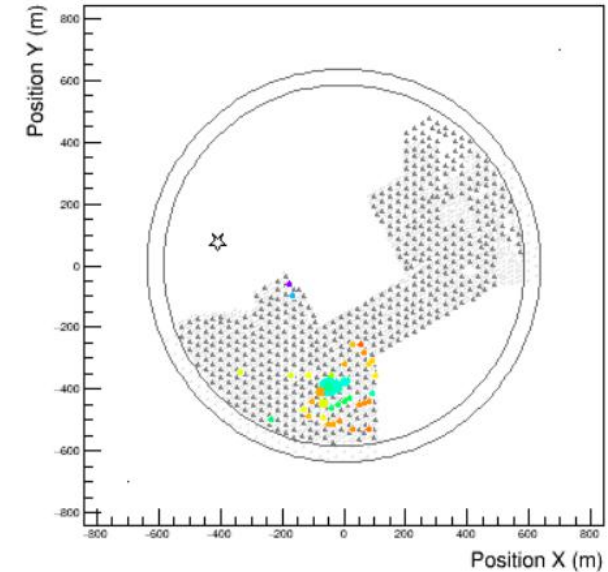
Purpose && Requirements

- Purpose: Showing events visually
 - Taking the ED hits as example:

```
hits.id      = 215, 213, 213, 214, 214, 307, 2253, 2253, 2252, 2
hits.mode    = 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
hits.ns      = 5000, 4979, 5189, 4982, 5198, 4859, 4869, 4889, 4
892
hits.qa      = 290, 443, 0, 499, 0, 123, 132, 0, 113, 114, 120,
hits.qd      = 100, 57, 0, 102, 0, 96, 103, 0, 101, 101, 99, 101
hits.peakTimeAnode = 1, 4, 0, 3, 0, 16, 11, 0, 8, 11, 12, 11, 12, 1
hits.peakTimeDynode = 1, 4, 0, 1, 0, 5, 1, 0, 1, 3, 1, 1, 4, 1, 0,
hits.peda    = 824, 571, 0, 832, 0, 803, 834, 0, 787, 802, 801,
hits.pedd    = 796, 450, 0, 816, 0, 761, 815, 0, 802, 800, 790,
```



CaliEvent Time && Signal



figures show the event's space distribution and time evolution more directly

- Requirements: Users' Suggestions.

Software should serve all users, and continuous development will base on the need of users

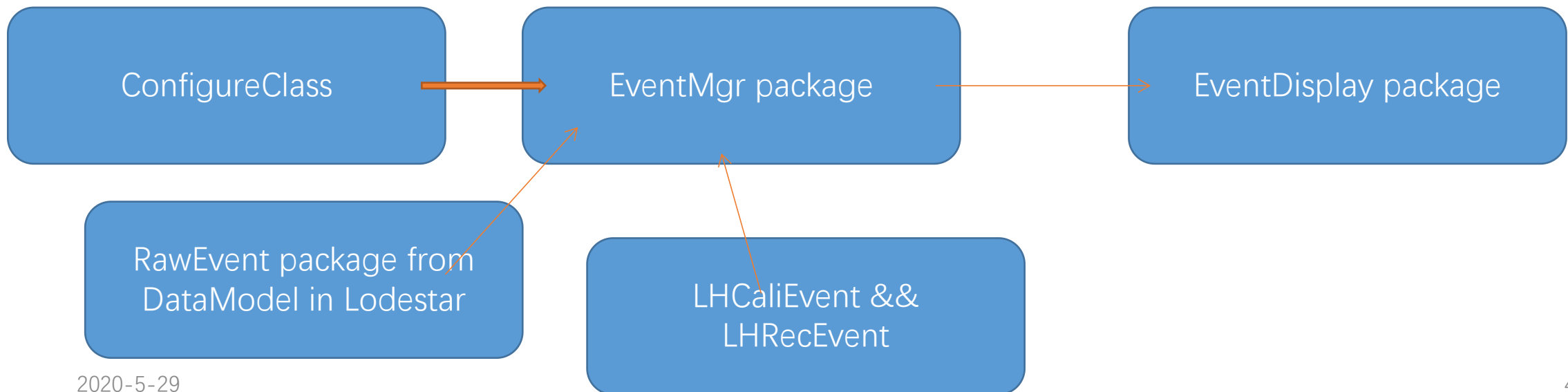
How this software works

5 packages works to plot an event

- EventMgr is a package to read in an event
- ConfigureClass defines parameters
- Finally, All the data will transfer to EventDisplay and plot it

People - Revision 535: /liwenl/tags/MyLHAASOWork/v1.0

- ..
- [ConfigureClass/](#)
- [EventDisplay/](#)
- [EventMgr/](#)
- [InstallArea/](#)
- [LHCaliEvent/](#)
- [LHRecEvent/](#)
- [cmt/](#)



Software work Details

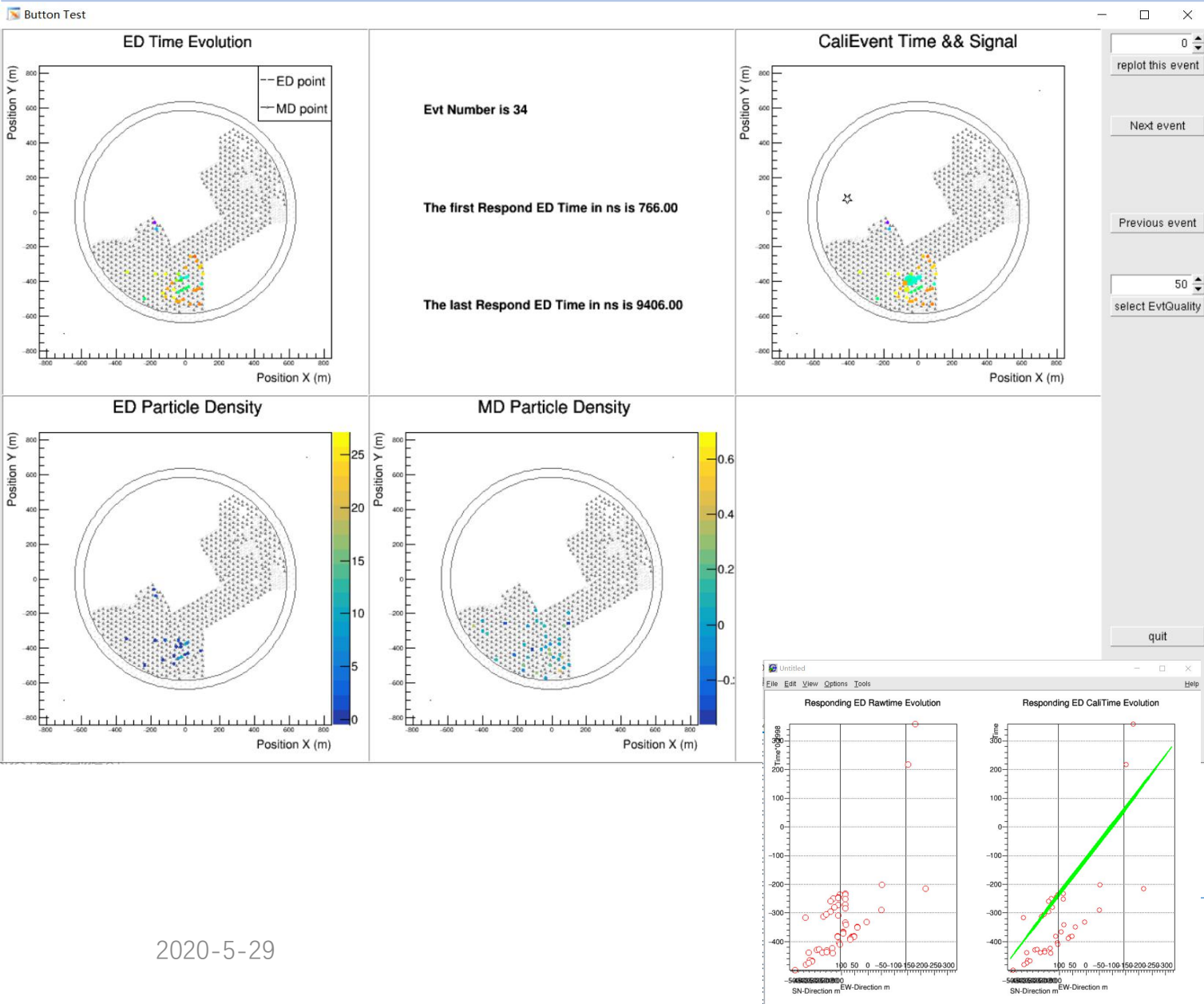
steering.evn file is used to set parameters in ConfigureClass

```
#####Configure File
#####RawFile Information
RawFileinPath:/scratchfs/ybj/liwl/LHConfData/
RawFileName:Raw_20191021.root
#####RecFile Information
RecFileinPath:/scratchfs/ybj/liwl/LHConfData/
RecFileName:gaow.root
#####AD Calculate Information .txt file
ADCFilePath:/eos/lhaaso/cal/km2a/ADCcal/2019/
ADCFileName:KM2AADC-20191025.txt
#####ED MD position map Information
#EDMapFilePath:/scratchfs/ybj/liwl/A/
EDMapFilePath:/scratchfs/ybj/liwl/A/
EDMapFile:ED_pos_half.txt
MDMapFilePath:/scratchfs/ybj/liwl/A/
MDMapFile:MD_pos_half.txt
```

All Parameters setted in steering.evn.

Every time the parameters are changed, there is no need to recompile the software. Just run it.

EventDisplay Result



button: select number of event

button: plot next event

button: plot previous event

button: select by ED hits number

A complete result

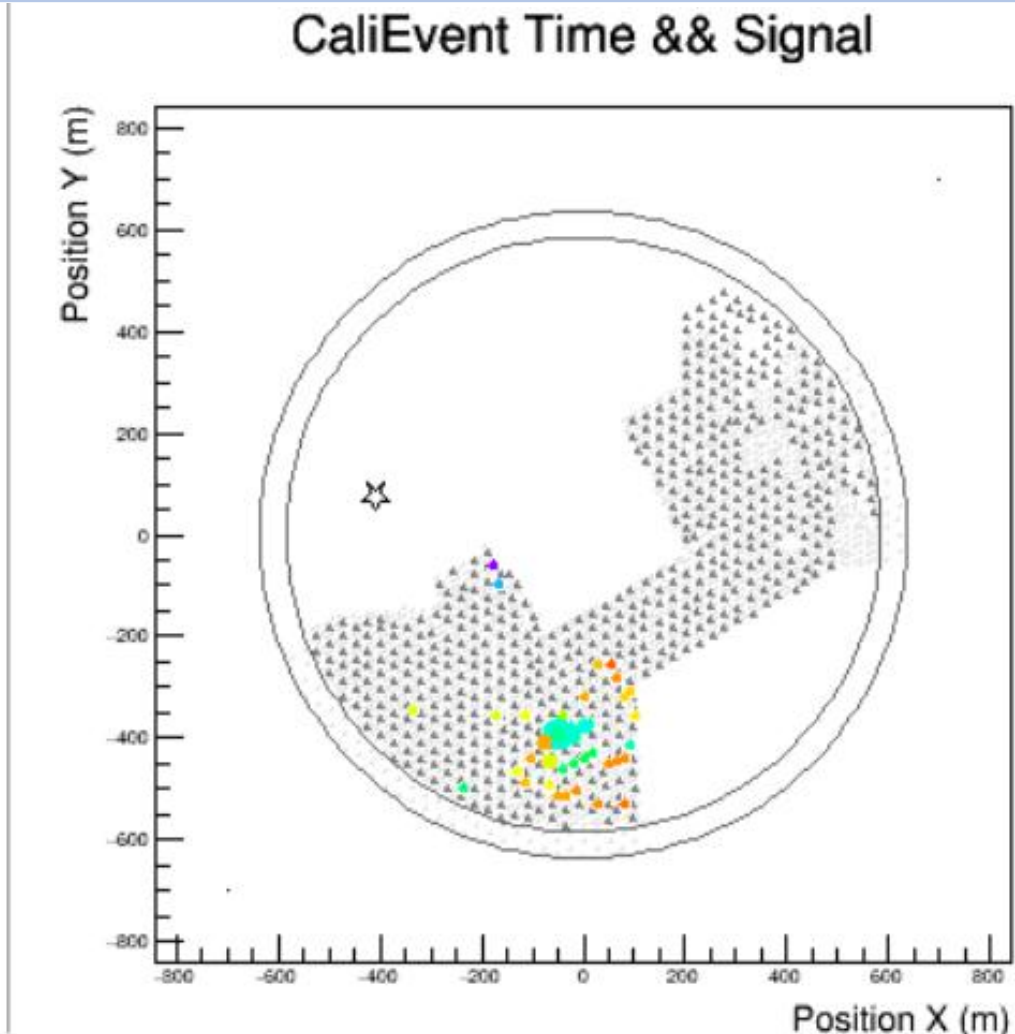
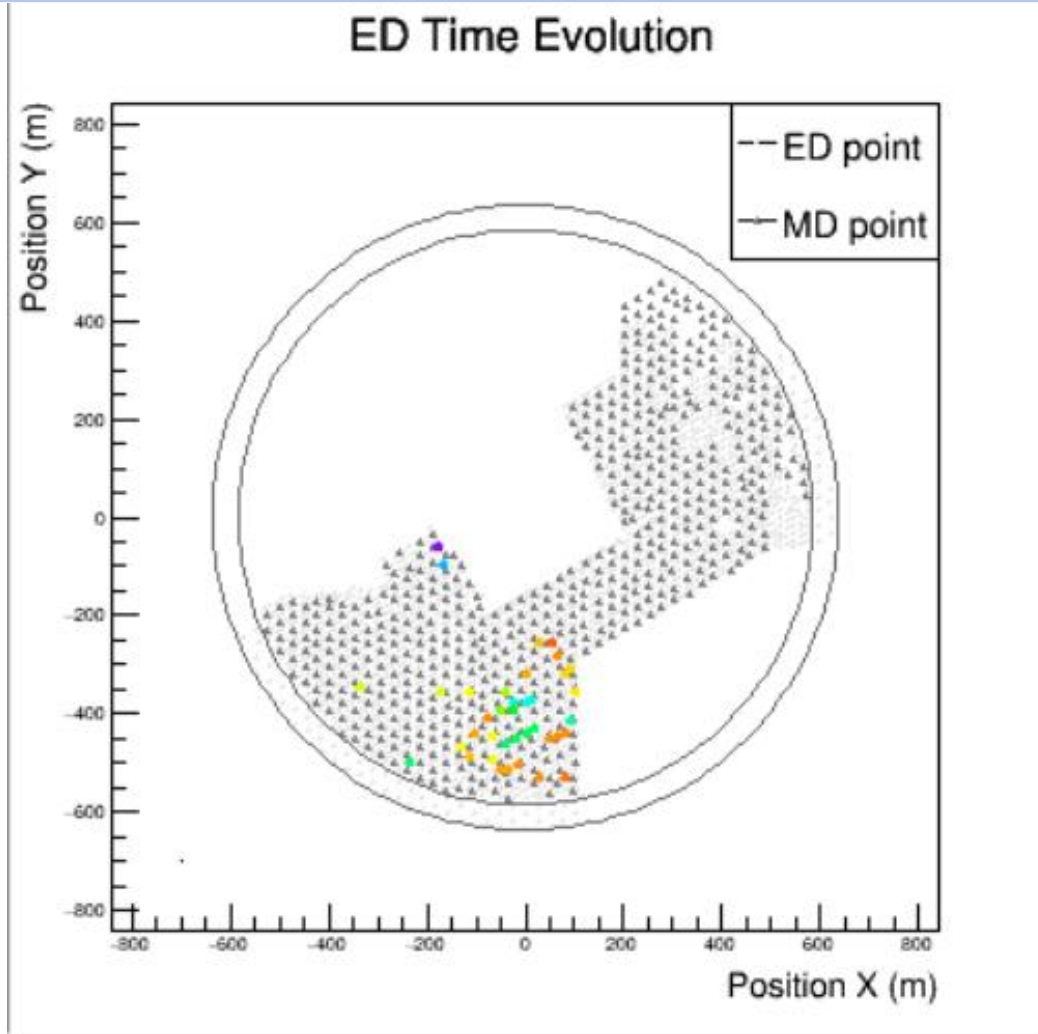
左上图: An event's ED Time information and ED hits space distribution

中上图: Recording events some basic information that you may interest in

右上图: CaliEvent information, Color stands for hits time information, size stands for ED signal strength.

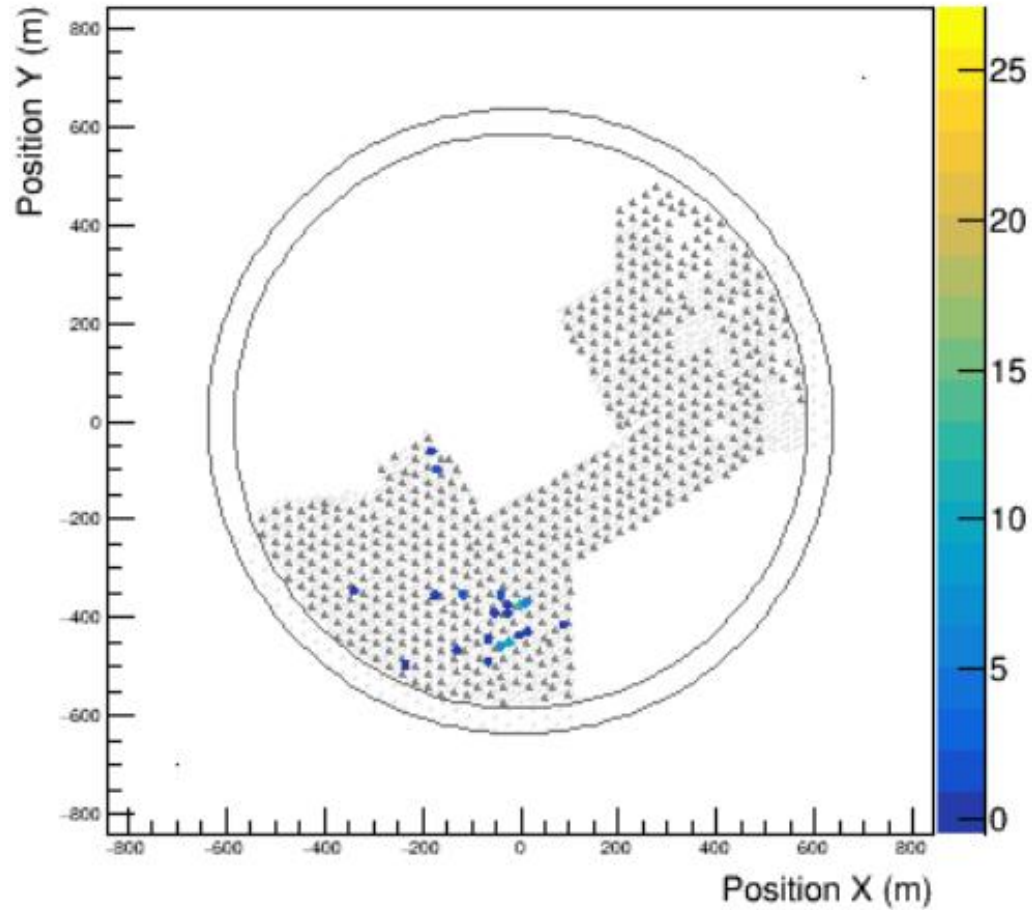
左下图和左中图: particle density

RecEvent information

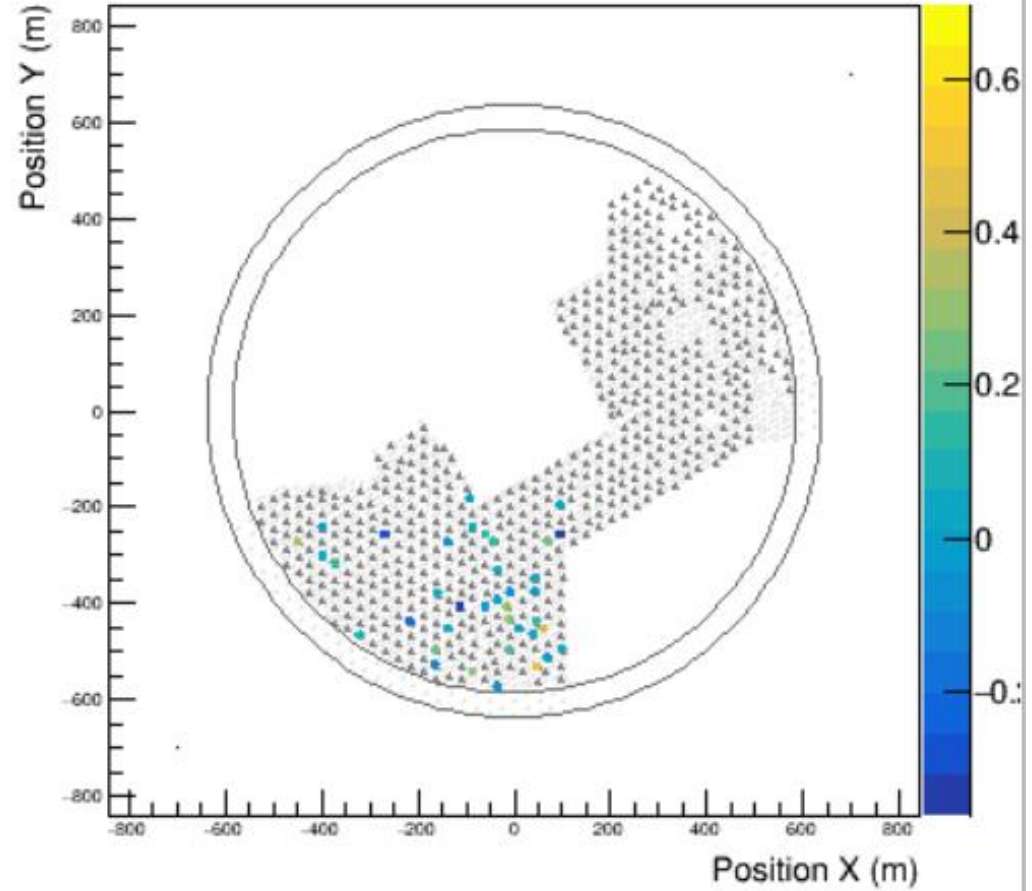


RawData and CalibData, different colors mean hits' time information, points' size stand for signal strength

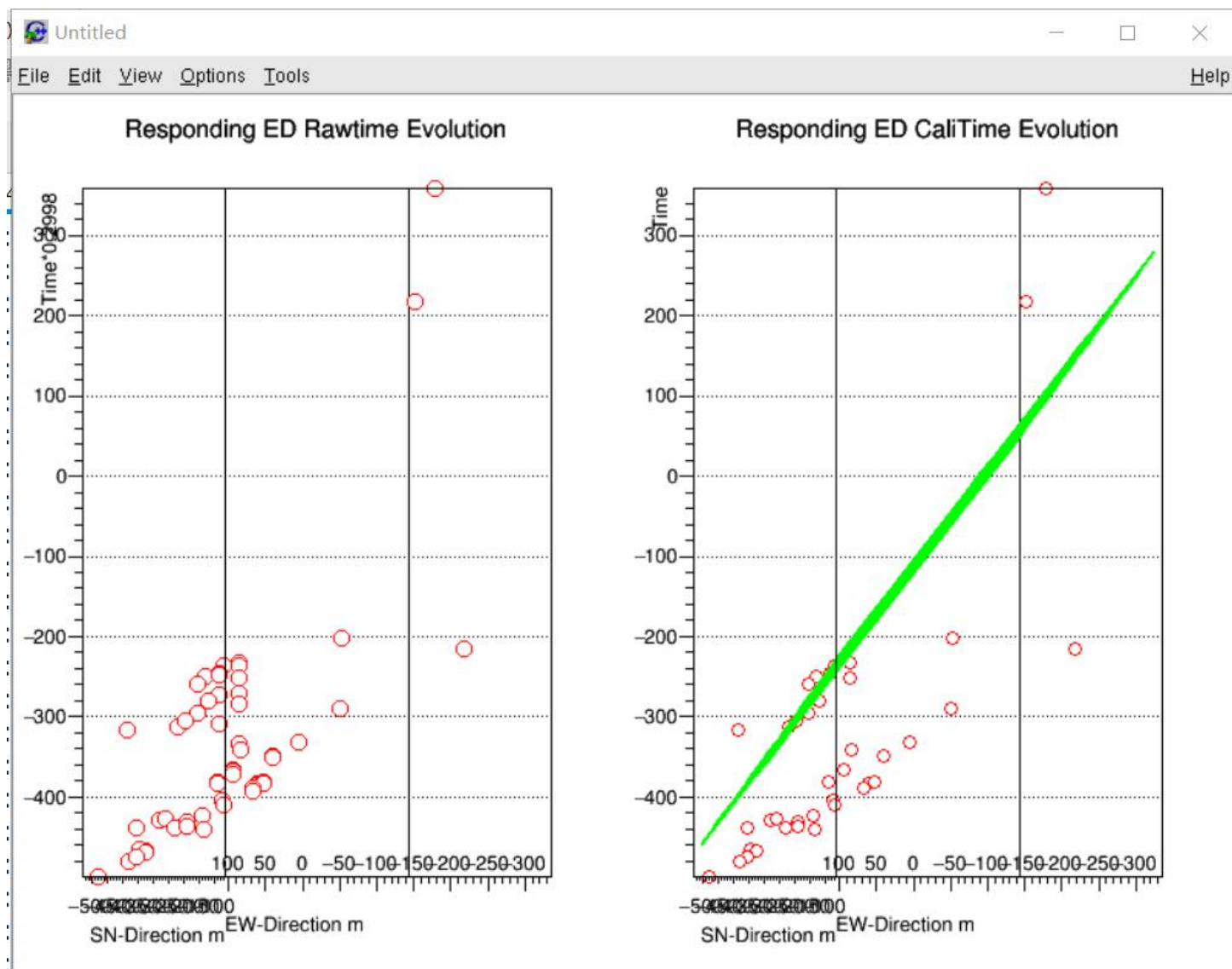
ED Particle Density



MD Particle Density



RawData particle density of ED & MD



Event重建后的信息

Z轴的值 of 响应时间*0.3

根据重建信息给出的theta和phi值和响应时间在5000ns左右的一个ED的位置，来确定出一个平面来做锋面，图中绿色的平面。

根据峰面扫过阵列的先后顺序重新计算所有响应ED的时间落在的位置。

将观测的视角设置为与峰面平行的角度

How to use

method to use or down load the software is introduced in twiki

<http://twiki.ihep.ac.cn/twiki/view/LHAASO/LhEventView>

Version 1: EventView shows response detectors' space distribution , time evolution and signal strength

1. Look at [LhSoft](#) , setup the environment in which LHAASO software version you will work
 - for example: `source /afs/ihep.ac.cn/soft/LHAASO/LodeStar-SLC6/Pre-Release/L19-Pre1_v1r1/setup.sh`
2. create your workarea/project
 - `cmt create_project myArea`
 - `cd myArea`
3. checkout needed packages as the directory structure in [LhSoft](#)
 - `svn co http://svn.lhaaso.ihep.ac.cn/People/iwen/tags/MyLHAASOWork/v1.0/ Path/to/myArea`
4. move to myArea and compile
 - there will be 7 packages under the myArea, these 5 packages ,[ConfigureClass](#), [EventDisplay](#), [EventMgr](#), [LHCaliEvent](#), [LHRecEvent](#), are needed to compiled one by one.
 - package [ConfigureClass](#). In this package, there is a steering.env file. It contains all the necessary parameters, input file name and path. these parameters should be available
 - `cd myArea/ ConfigureClass /cmt`
 - `cmt configure`
 - `make`
 - package [LHCaliEvent](#) and [LHRecEvent](#). These two packages are Data Model
 - `cd myArea/ LHCaliEvent or LHRecEvent/cmt`
 - `cmt configure`
 - `make`
 - package [EventMgr](#). These package is used to read Event information with the Data Model packages.
 - `cd myArea/ EventMgr/cmt`
 - `cmt configure`
 - `make`
 - package [EventDisplay](#). These package is used to show the graph.
 - `cd myArea/ EventDisplay /cmt`
 - `cmt configure`
 - `make`
 - `source setup.sh`
5. 在执行make命令时, EventMgr [ConfigureClass](#) 和 [EventDisplay](#) package中可能会返回一个error: /user/bin/ld: cannot find -lpackagename 。此时只需要在执行一边make就可以编译通过
6. run the job
 - `cd ../amd64_linux26`
 - `./serena.exe`

Thanks