

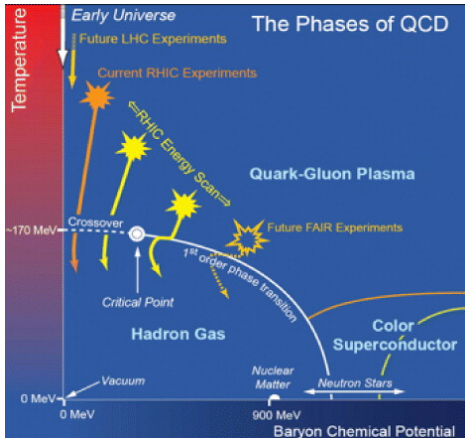
# Possibilities of implementing HaBeTy software to MPDROOT as code for HBT analysis

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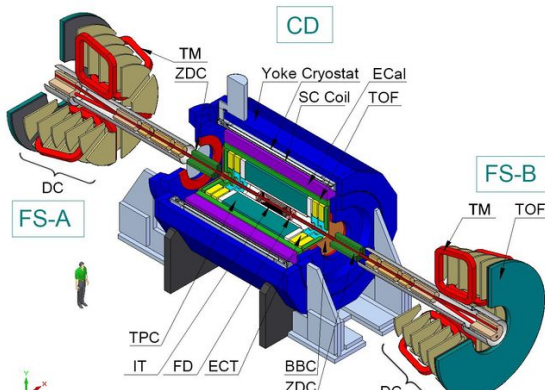
- 1 Motivation
- 2 HaBeTy Package - present status
- 3 MPD software

# Phase diagram of strongly interacting matter



# MPD experiment

- Nuclotron-based Ion Collider fAcility
- systems colliding from  $\sqrt{s_{NN}}$  4-11GeV ( $Au^{79+}$ ) to  $\sqrt{s_{pp}}$  4-20GeV
- Multi-Purpose Detector



# Main goals of MPD experiment

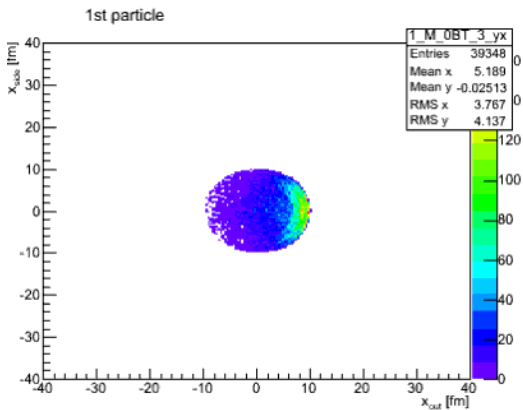
- $K/\pi$  (strangeness to entropy ratio)
- anisotropic collective flow
- asymmetries and fluctuations
- HBT (especially  $R_{out}$   $R_{side}$  ratio)

# Main purposes

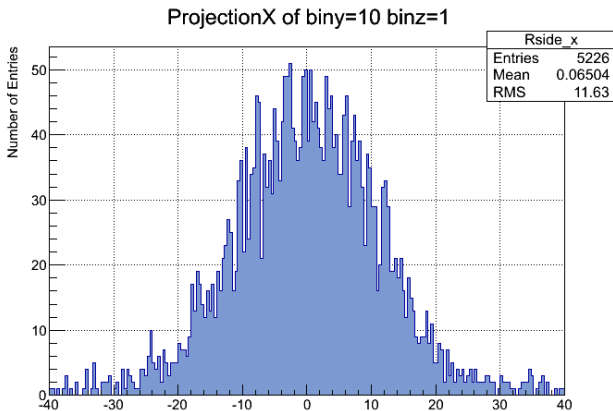
- fast
- low hardware requirements (should work on single PC)
- use many models
- easy to use
- based on class structure - code is build from boxes
- separation between analyze and drawing plots
- one analysis - one class rule

# Present status

- „pure” HBT measurements (azimuthal, identical particles, double ratio (but not tested yet :))
- $\Delta\phi\Delta\eta$  measurements
- Armenteros-Podolanski plot
- Spherical Harmonics HBT support and weight algorithm in C++ (thanks to A. Kisiel)
- some stuff to analyze HBT (those funny plots below :))







# Plans for future

- simplification of code without loosing much performance
- adding some flow analysis
- adding some jet analysis
- adding some classes for fast reconstructions
- adding methods to analyze residual correlations

# MPD software

- based on Fairroot
- lack of software for „true” HBT analysis

## Plans for MPD software - stage I

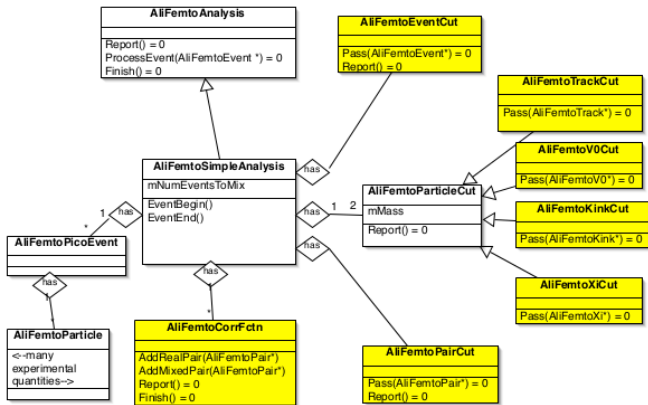
implementing „upgraded” HaBeTy

- support for parallel analysis (e.g. PROOF)
- enabling full 3D HBT
- support Fairroot/MPDRoot data formats
- switching from Makefile to cmake

## Plans for MPD software - stage II

implementing almost entire AliFemto into MPD software

- AliFemto has been tested
- AliFemto is more advanced than HaBeTy
- some classes must be changed to work with Fairroot software



## Plans for MPD software - stage III

second upgrade of „HaBeTy”

- similar functionality to AliFemto
- have possibly the biggest amount of common class with other analysis classes
- HaBeTy as inter-experimental tool for HBT analysis

# Summary

- there is a lot of work to do
- AliFemto and HaBeTy will be used for MPD software