PID with TMVA – ongoing work

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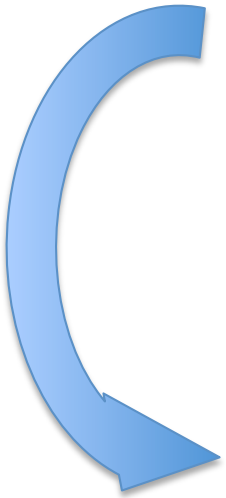
Status of present work

A. Production of the simulation events, 10^6 evt for each set:
using PANDAgrid and new GSI batch farm (still to be tested)



① 5 particles species: e^+, π^+, μ^+, π^+, K^+, p (later also for negative one)
② 2 ranges of momenta: (1) $0.2 < p < 2$ GeV/c, (2) $2 < p < 10$ GeV

Presently running

Half of the statistics will be used for the training of the method,
second half for the cross-check of the performance.

New further plans

I estimate, that I will need at least one month (worst scenario) to have finished:

a. simulation (sim, digi, reco, pid)
b. training of the TMVA methods (KNN, Bayesian, MLP)
c. prepare parameters for the methods

Once this is ready I will be able to do following:

a. run PID with new parameters for TMVA
b. include new version of the Ronalds code and the parameters (Bayesian method)
c. compare performance of both methods: TMVA (MLP, Bayesian) and Bayesian (Ronald)
   - ✓ study efficiency and purity for the electron/pion separation.

Goal is to have everything ready before next PANDA collaboration meeting.
Test it on e+e- and pi+pi- reactions ?

Parallel plans

Investigation of the muon identification using MDU detector,
for this propose simulated files can be used.

Thank you very much for your attention.

What is TMVA ?

TMVA : is a software **T**oolkit for the **M**ultivariate **D**ata **A**nalysis