# electron/pion separation using TMVA

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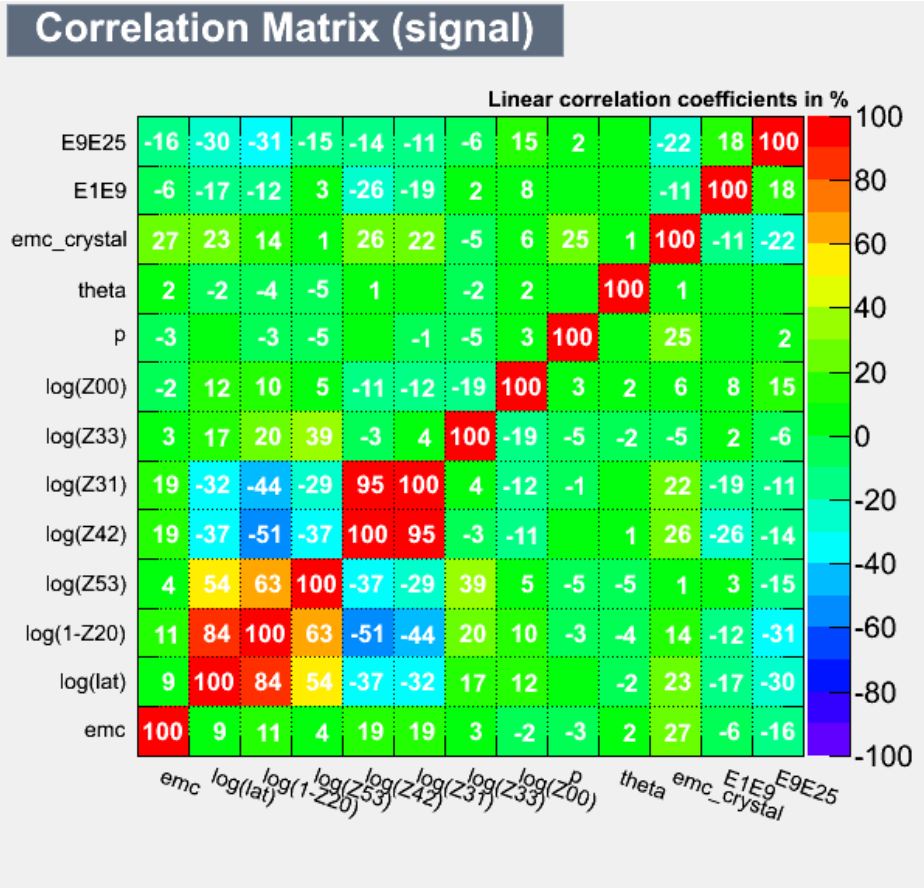
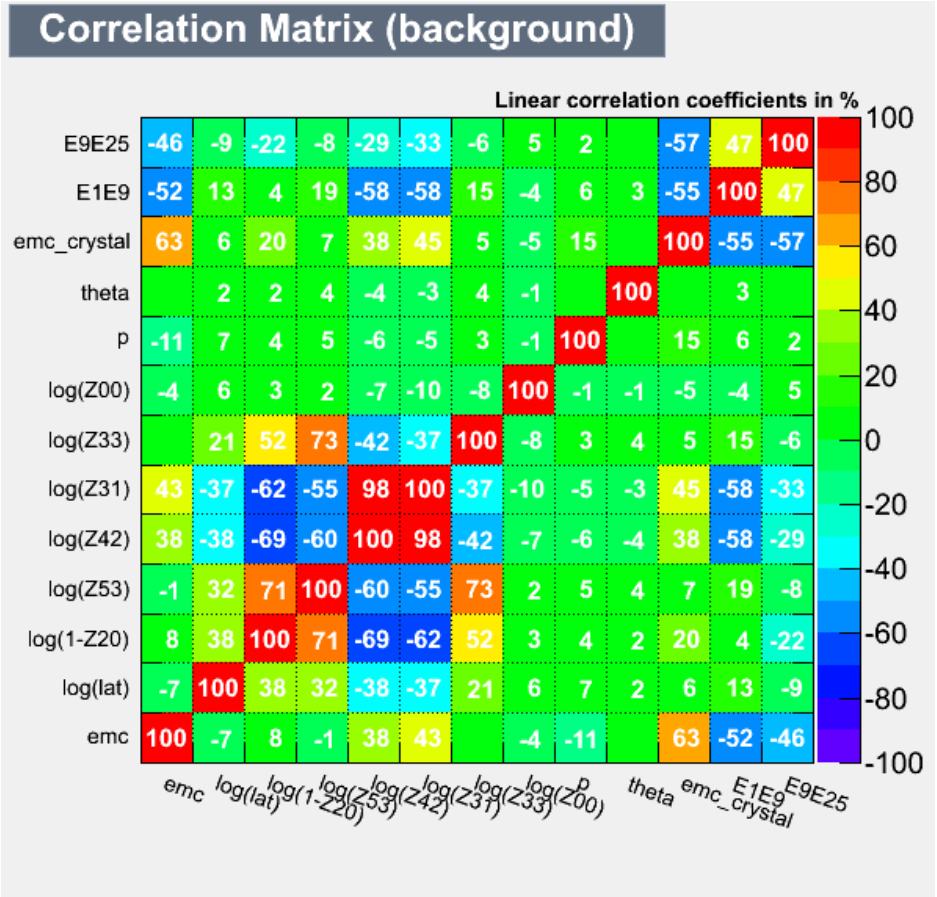
# Which variables should we use? Correlation plots.

## electron




## negative pion

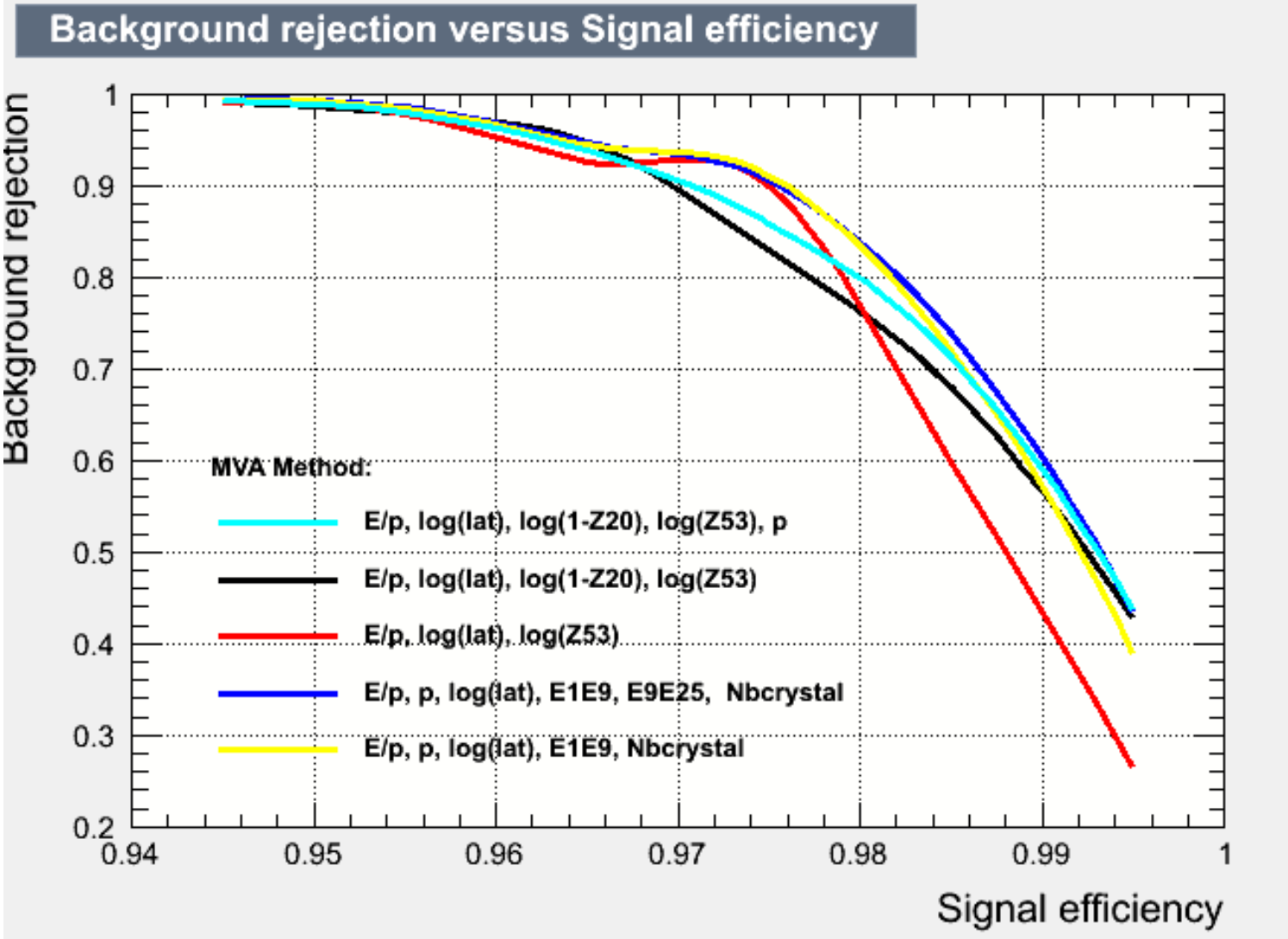



Monte Carlo momentum : 0.2 – 5 GeV/c

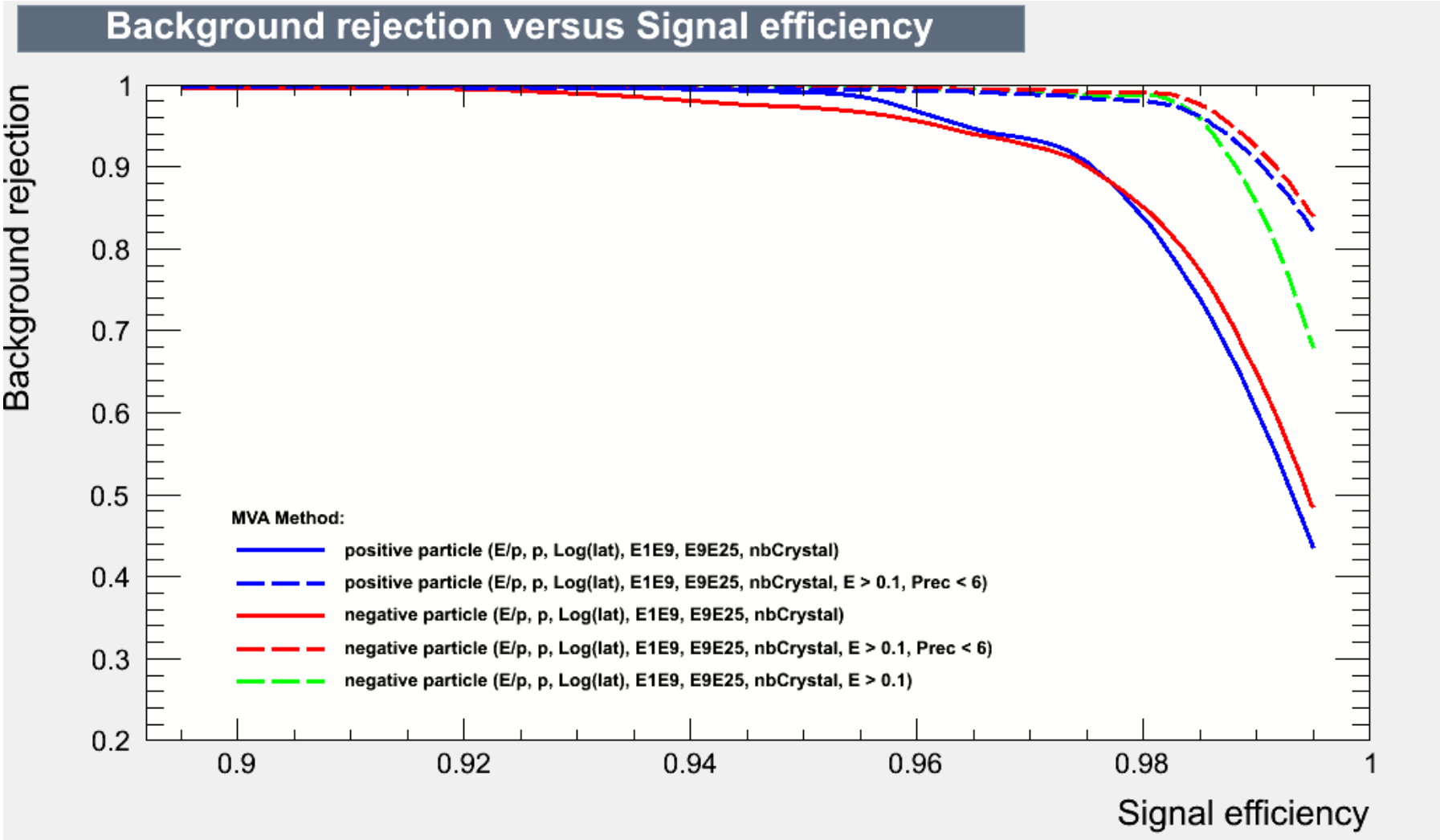
For the final PID following observables were selected:

E/p (emc), lateral momenta, E1/E9, E9/E25, number of crystals (emc_crystal)

# ROC curve for different combination of parameters



# Additional condition on deposited energy




Rejecting particles with small energy deposited in the EMC also improves ROC curve: E > 0.1

Problems with very high reconstructed momenta, see Forum entry:
**https://forum.gsi.de/index.php?t=tree&th=3519&start=0&rid=322&S=7f8177949476304ab15e2d06d818c936**

# What now …

- ✓ Preparing parameters for all 5 particles, -> started
- ✓ Change class reading parameters (new variables) -> started
- ✓ Run simulation using new parameters for PID,
- ✓ Compare results with other naïve Bayesian method developed by Ronald

- ✓ Results to come as Part III on the next EVO meeting