

# Software, simulation and data analysis summary

G. Cibinetto and M. Rotondo  
on behalf of the team

# The team

- Jarek (prototype data analysis)
- Marcin (prototype data analysis)
- Valentina (background and Full Sim)
- Marcello (data analysis and Fast Sim)
- myself (data analysis)
  
- ...

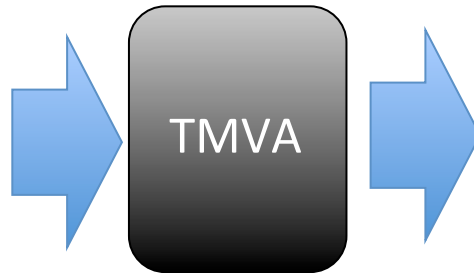
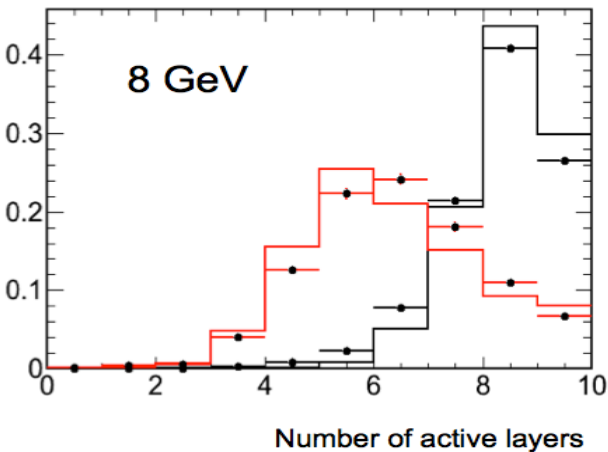
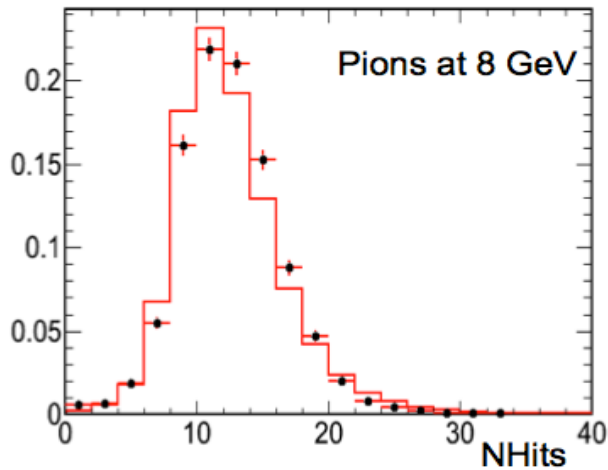
- We had two parallel working sessions where we reviewed the data analysis status and we tried to set short term and long term goals.
- We had also one talk by Jarek summarizing the Cracow's contribution to the prototype data analysis.

# Ongoing studies with the prototype

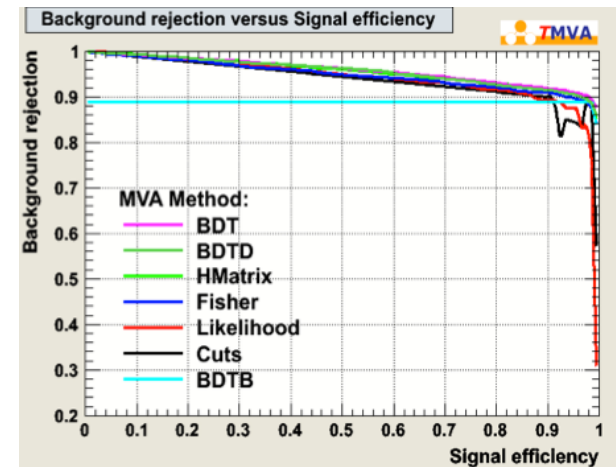
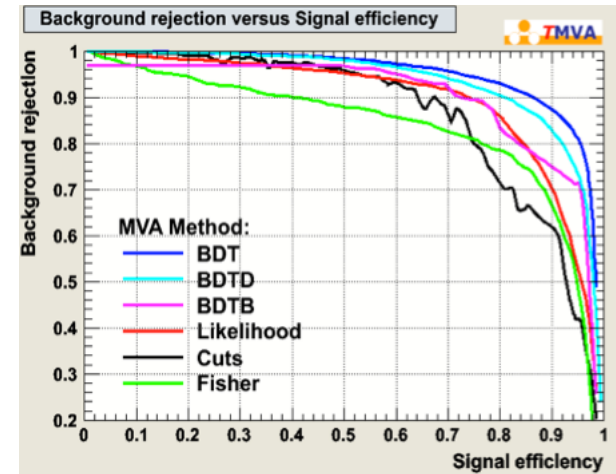
- Present Status of IfrRootCode
  - the code doesn't need any big modification in the short term
  - there is some makeup to do to test the endcap readout
- Track merging
  - add also events with more than 2 tracks?
  - merge electrons?

# Clean the prototype data samples to improve data/MC

input: overall agreement data-MC



Output not consistent



# Improve data/MC agreement

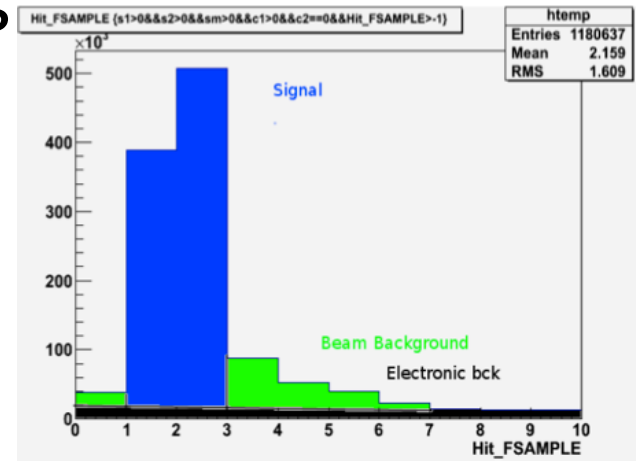
First try

- Train TMVA with merged events.

# Clean the prototype data samples to improve data/MC

## Second try

- Improve trigger selection using timing information.
- Use hit time information
- Pattern recognition?
- Use the prototype itself?
  - First layers or cut on some variables (number of layers)



# If the agreement data/MC is good

- Forget about the prototype and use the simulation to perform PID studies.
- Explore the momentum region [0.5-4] GeV



# Differences between physics lists

- That has been postponed (lower priority);
- Once we have understood the data/MC differences.

# Background simulation with Bruno

- Need to implement a more realistic model in the IFRRootCode.
- Under discussion what is the best way to do it.
- Should be done for the TDR.

# TDR preparation

- PID chapter
  - studies will be based on MC only
  - main structure of the paragraph is in place
  - conclusions to come after finalizing the analysis
  - $K_L$  paragraph needs some thinking
- Prototype PID performances
  - will show tuning of the MC, comparison with data, and will be based on 8GeV dataset
  - not written yet, most of the work done, few thing to be finalized
- Background
  - this paragraph is in good shape; needs to update plots and numbers with the last production