Status of the HEC Noise Corrections in Athena

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Introduction

- The first idea for correcting for the HEC oscillation noise observed in the 2004 CBT data, was to write a correction tool in Athena
- This tool has been written and tested locally on teresab@lxplus account at CERN

Noise Corrections in Athena

The code in Athena has been implemented but it is not commited to CVS

- The tool is called LArDigitOscillationCorrTool and is in located in the package LArCalibUtils
- This tool is included in the LArDigitPreprocessor
- The class LArDigitOscillationCorrTool reads from the CondDB one of the parameter needed for the corrections:
  - p_j = pedestal for channel number j
- The other parameters at the moment are read from an ascii file:
  - φ_j = channel phase for channel number j
  - r_j = relative channel amplitude for channel number j

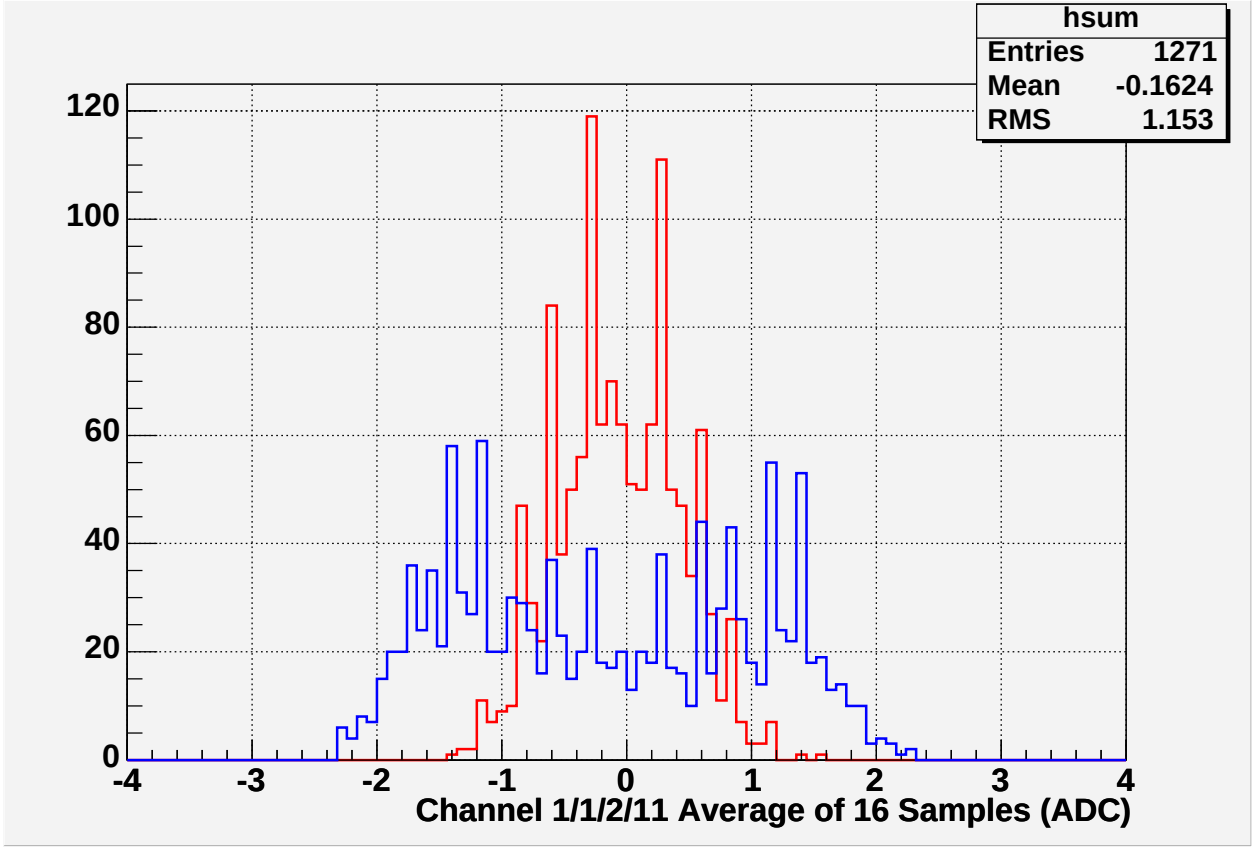
What the class LArDigitOscillationCorrTool does

- In a first step the class LArDigitOscillationCorrTool calculates the
  - φ_i = event phase for event number *i*
- In a second step this class makes the corrections

- Realese used for testing the code: 10.0.0
- Data analyzed from RUN I: run # 829, 120 GeV μ beam, with 16 time samples
- Number of events considered 2000

Reference channel test

Channel phase distributions (blue not corrected, red corrected) for the the reference channel located in sampling 1, region 1, eta-index 2, and phi-index 11.



New class LArH6Oscillation.h in LArRawConditions

- A new class LArH6Oscillation.h has been written and is part of the package LArRawConditions
- This class define the data structure needed to insert data in the CondD
- We want to insert in the CondDB the data that at the moment we read from an ascii file (acii files are not allowed in Athena): φ_j, and r_j
- Pavol is helping in this job, he will also help in inserting the data in the DB

Conclusions

- The code is working
- Extend the code to correct data with signal
- The code should also correct Run II data (with 7 time samples)