Run 6 $\gamma E$ Scale

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Outline

- Time / Lumi dependence in Run 5 of $\pi^0$ data
- Run 6 Calibration
- Summary
Introduction

Data

- Datasets for $\mu\mu\gamma$ data:
  - run 5 R18c V7
  - MC SP3981 (R18b), no selection corresponding to the run range in data!

- Use exactly the same selection as for the previous $\mu\mu\gamma$ calibration.

- Datasets for $\pi^0$ data:
  - run 5 R18c V7
  - run 6 R 22.0.3: runs 69627 – 70488 (24.1.07 – 21.2.07)
  - run 5 MC R18b

- For the time dependence in run 5 the following sets were selected:
  - set I run 53700 – run 60000 (13. April 05 – 7. December 05)
  - set II run 60001 – run 65000 (7. December 05 – 21. May 06)
  - set III run 65001 – run 67400 (21. May 06 – 6. August 06)
Time dependence of the EMC response in run 5 - $\mu\mu\gamma$ data

In $\mu\mu\gamma$ data no time dependence of the EMC response in run 5 is observed.
In $\mu\mu\gamma$ data no dependence on the initial Lumi of the EMC response in run 5 is observed.
In $\pi^0$ data a small dependence at low $E_\gamma$ on the initial Lumi of the EMC response in run 5 is observed.
Comparison Run 5 and Run 6 of the EMC response - $\pi^0$ data

Apply run 5 calibration to the run 6 data and compare to run 5 data.

As already seen in case of $\mu\mu\gamma$ data the $\pi^0$ data shows that the $\gamma$ scale has to be adjusted.

Jörg Marks

EMC Meeting
E dependence of the $\gamma$ energy scale in $\mu\mu\gamma$ and $\pi^0$ data

- Use run 5 angular dependence and determine E dep. in $\pi^0$ and $\mu\mu\gamma$ data
- Use run 5 MC!
E dependence of the $\gamma$ energy scale in $\mu\mu\gamma$ and $\pi^0$ data

$E_{\gamma}$ dependence of the $\gamma$ energy scale in $\mu\mu\gamma$ and $\pi^0$ data

$\gamma$ scale

$E_{\gamma}$

$m_{\pi^0}$ MC
$m_{\mu\mu\gamma}$ MC

$E_{\gamma}$ dependence of the $\gamma$ energy scale in $\mu\mu\gamma$ and $\pi^0$ data

$\gamma$ scale

$E_{\gamma}$

$m_{\pi^0}$ data
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$E_{\gamma}$ dependence of the $\gamma$ energy scale in $\mu\mu\gamma$ and $\pi^0$ data

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Summary

- Neither a time dependence nor a dependence on the initial luminosity of a run was observed in run 5 $\mu\mu\gamma$ data.

- In $\pi^0$ data a small dependence on the initial luminosity is observed.

- In order to adjust scale changes between run 5 and run 6 data, new calibration constants were determined. Since there is not enough $\mu\mu\gamma$ data the angular dependence of run 5 was used. As MC the run 5 MC was taken. This means these constants are preliminary and will be updated as soon as proper datasets are available. But they are an improvement compared to run 5 constants.