



# Time of Flight system of the <u>BM@N</u> experiment: status and plans

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# TOF700



#### TOF700 in Run 8:

- 3.2x2.2 m<sup>2</sup>
- 60 diferent size detectors
- 3520 channels of FEE

All detectors worked normally during all run. Episodiec HV trip on some detectors. One HV power source has been repaired.

Steps of data analysis:

- Correction on the cable length Done
- Slewing correction
  Done
- Time shift correction (by MC) Done
- Alignment by tracks
  No
- Time tune by proton
  No

### TOF400



TOF400:

- 2 x 1.15x1.3 m<sup>2</sup>
- 20 detectors
- 1920 channels of FEE

All detectors worked normally during all run. One of the detectors (Plane#12) was offline for a two days by HV trip! Alarm system should be tuned.

Steps of data analysis (see M. Mamaev report):

- Correction on the cable length Done
- Slewing correction
  Done
- Time shift correction (by MC) No
- Alignment by tracks
  No
- Time tune by proton
  No



#### TOF extension



#### **TOF400** extension

2.5

6

current configuration: extendet configuration: • 2 x 1.15x1.3 m<sup>2</sup> • 2 x 1.7x1.3 m<sup>2</sup> ~19% acceptance increase (pi+) 20 detectors • 30 detectors Cost estimation  $\sim 120k$ \$ ٠ 1920 channels of FEE • 2880 channels of FEE • XY tr CutT7 z430 tr pi current ext. ext.-current 160 140 50 120 100 80 60 -50 40 20 -1002.5 3 3.5 -200 -100100 200 300 X. cm DCMQGSM Au+Au 3.8 AGeV.

### Additional detectors.

2.5 3 3.5

new detectors:

• 2 x 0.6x0.6 m<sup>2</sup>

current

- 4 detectors
- 348 channels of FEE it is possible to separate pions from kaons up to p<2 GeV/c





1.5 2 2.5 3 3.5

#### Combine two options.

new detectors + extendet configuration: 2 x 0.6x0.6 m<sup>2</sup> + 2 x 1.7x1.3 m<sup>2</sup>

- 4 + 30 detectors
- 348 + 2880 channels of FEE

~37% acceptance increase(pi+) Cost estimation ~140k\$



### Summary.

- The current tof system (TOF400 + TOF700) worked well during the last run. There are not big problem with maintains.
- The simulation for TOF acceptance extension was done.
- The critical components of FEE and detectors are already ordered.
- More detailed analysis of MC should be done in order to make a decision.

	Current tof	Extendet	Additional	Combined
Arreya, m^2	2.99	4.42	2.99 + 0.72	4.42 + 0.72
Detectors	20	30	20+4	30+4
FEE	1920	2880	1920+348 = 2268	2880+348 = 3228
Acceptanse (pi+)	1	1.19	1.22	1.37
Cost Estimation	560 k\$	+ 120 k\$	+ 60 k\$	+ 140 k\$

Cost estimation value is very approximately! The situation in the market changes every day.<sup>9</sup>

## Thank You for attention

# Расширение ТОF400

