

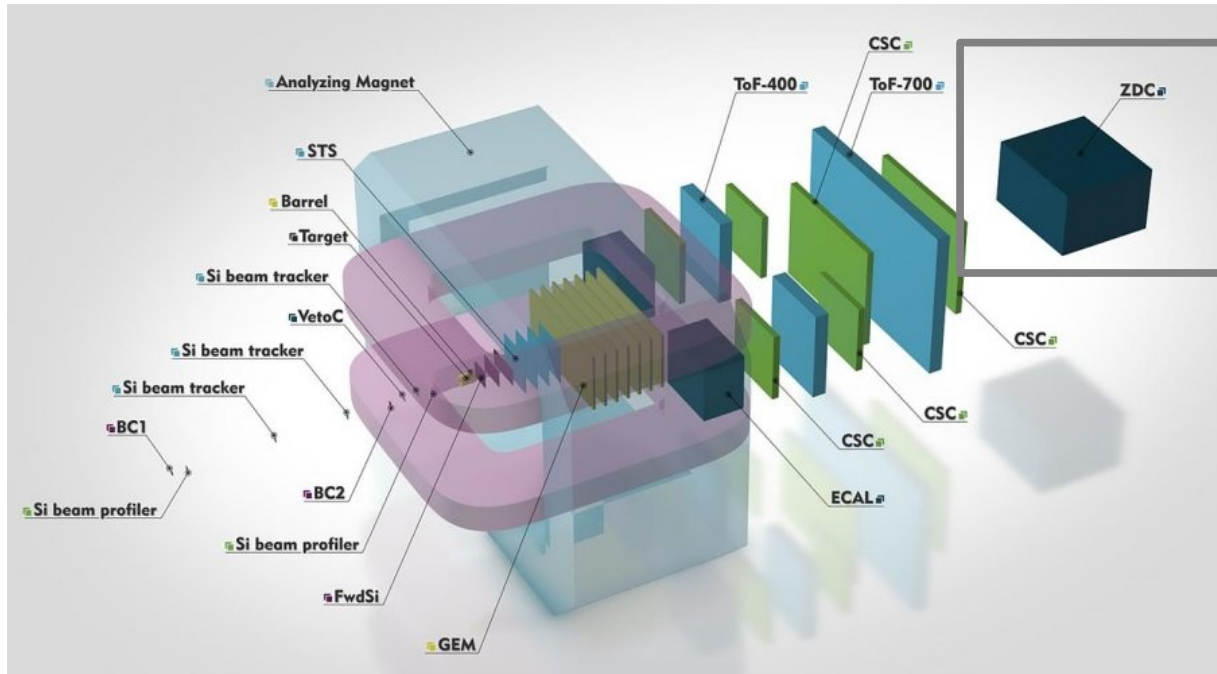
5th Collaboration Meeting of the BM@N Experiment at the
NICA Facility (20-21 April 2020)

ZDC data analysis in comparison with the predictions of LAQGSM and UrQMD models

S.Afanasyev, P.Alekseev, A.Stavinsky, [N.Zhigareva](#)

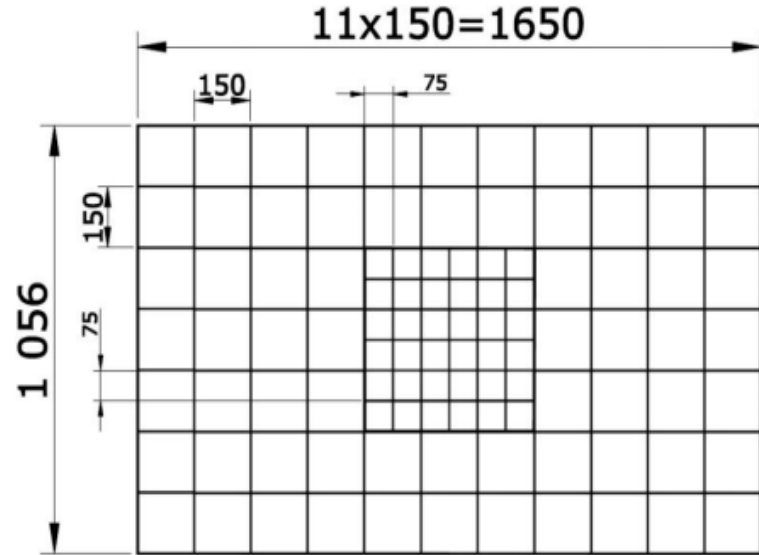
20 April 2020



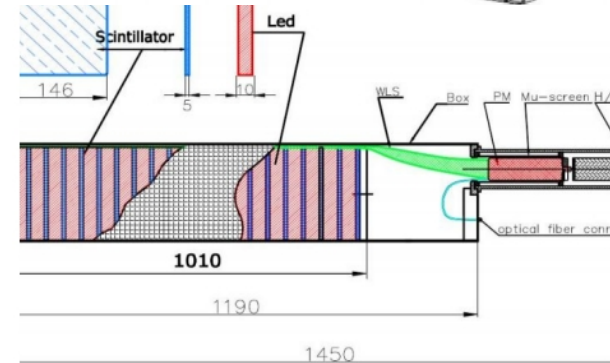
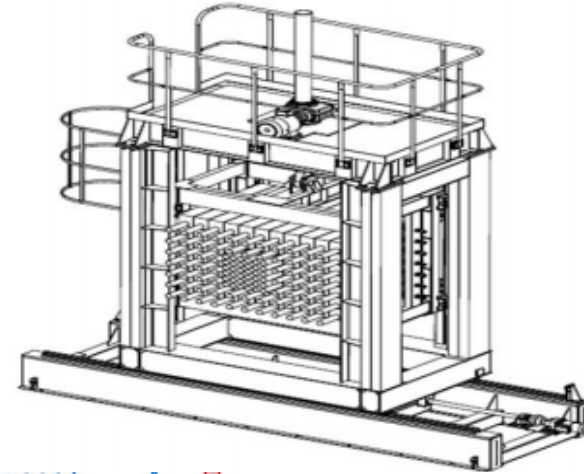


- ZDC setup
- Data & MC selection criteria
- ZDC spectra

Zero-Degree Calorimeter setup



- Central part consist of 36 modules with sizes $7.5 \times 7.5 \text{ cm}^2$
- Peripheral part contains 68 modules of $15 \times 15 \text{ cm}^2$

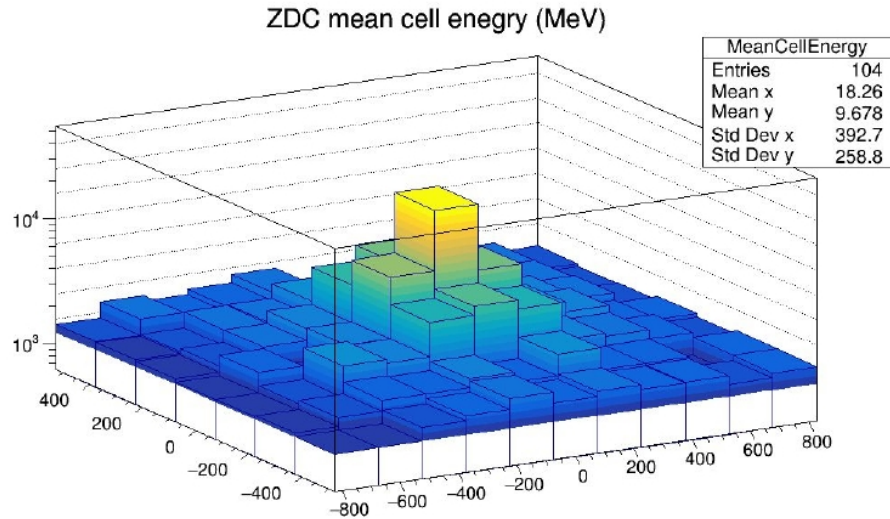


- 64 layers: 5mm scintillator + 10mm lead absorber
- Wave length shifter
- PMT with voltage divider

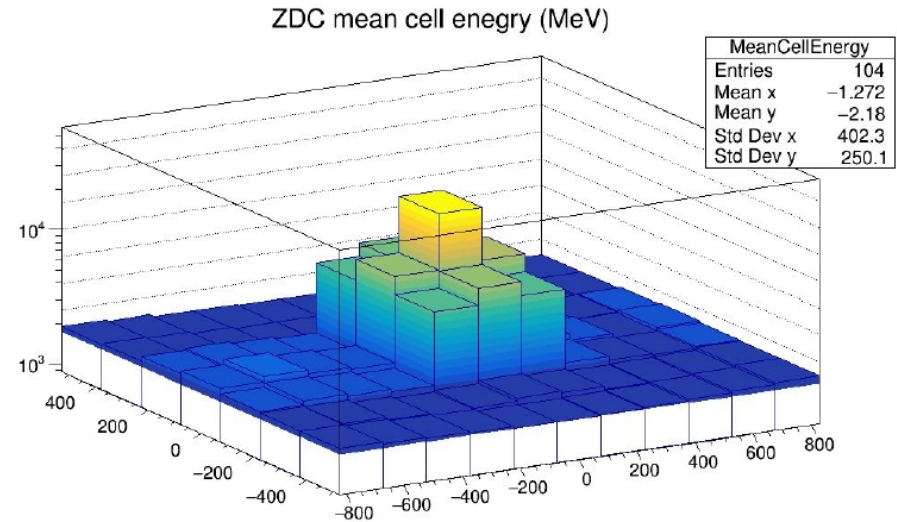
- Data
 - BM@N RUN 7 (2017) for Ar(3.2 AGeV) + Al (3.33 mm), beam trigger + BD (≥ 2) and FD(≥ 3), SP-41 1250, VKM2 220, run №4046
- MC
 - LAQGSM simulation for Ar-Al 3.2AGeV obtained from bm@n resources
 - UrQMD v3.4 simulation for Ar-Al 3.2AGeV
 - ZDC position: $x=50\text{cm}$, $y=-6.3\text{cm}$, $z=1000\text{cm}$

ZDC mean cell energy

Data

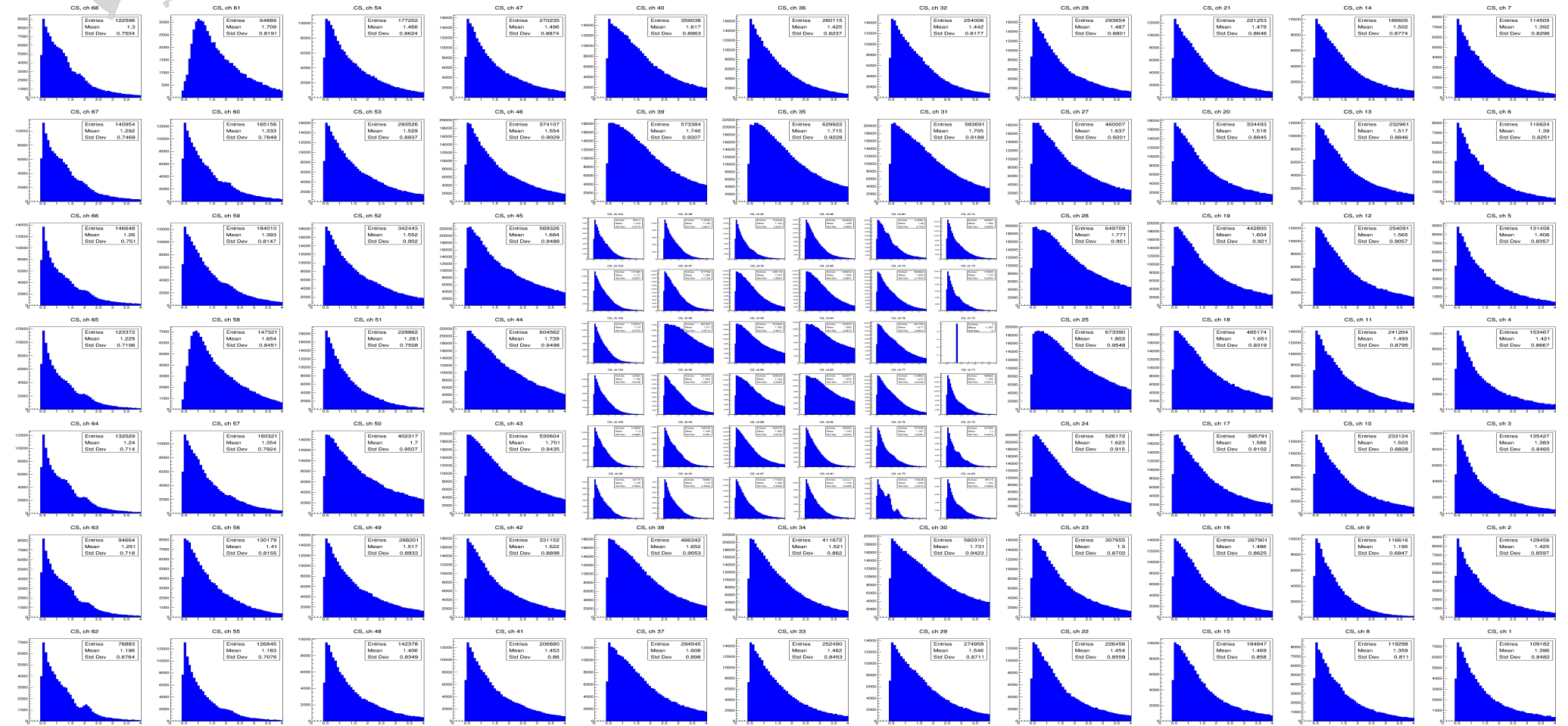


MC (LAQGSM)

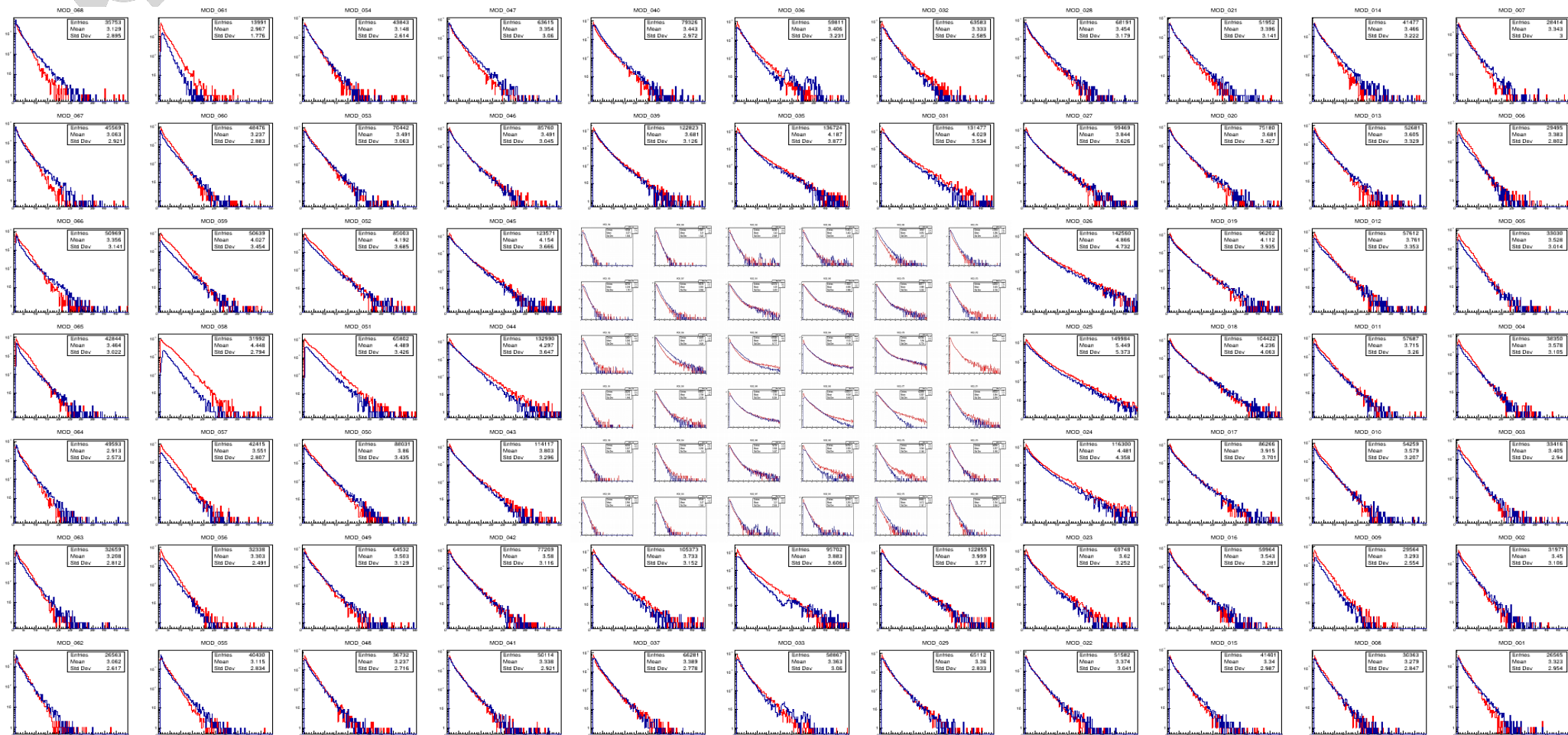


P.Alekseev, 4th Collab.Meeting of the BM@N

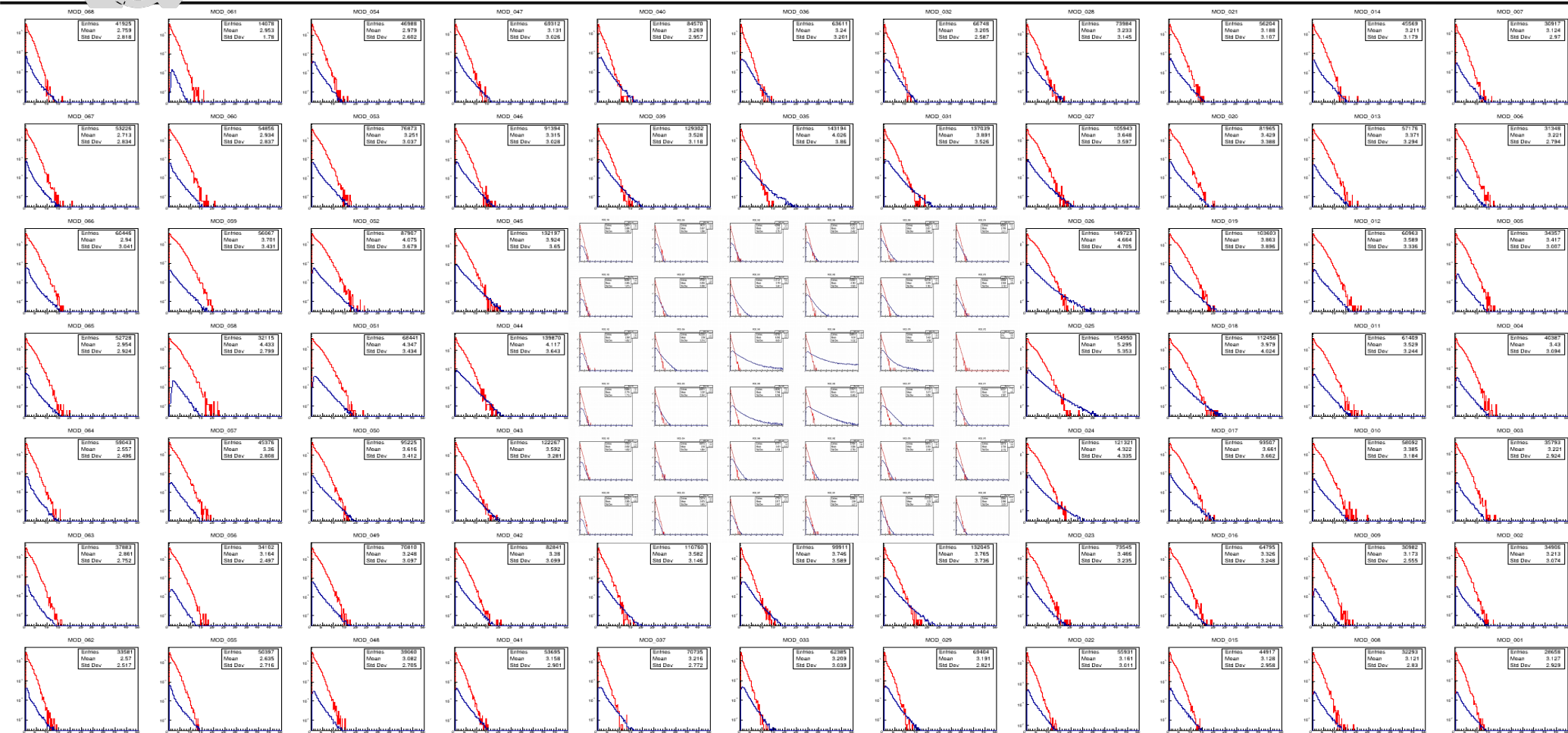
ZDC data spectra



ZDC spectra: LQGSM (red) & Data (blue)



ZDC spectra: UrQMD (red) & Data (blue)



- Need to consider the fraction of fragments rightly;
- The variance of fragment's emount between data and MC is observed;
- The models are different and it can inluence at ZDC parameters significantly;
- Further analysis is continuous;

Thank you!



Backup
