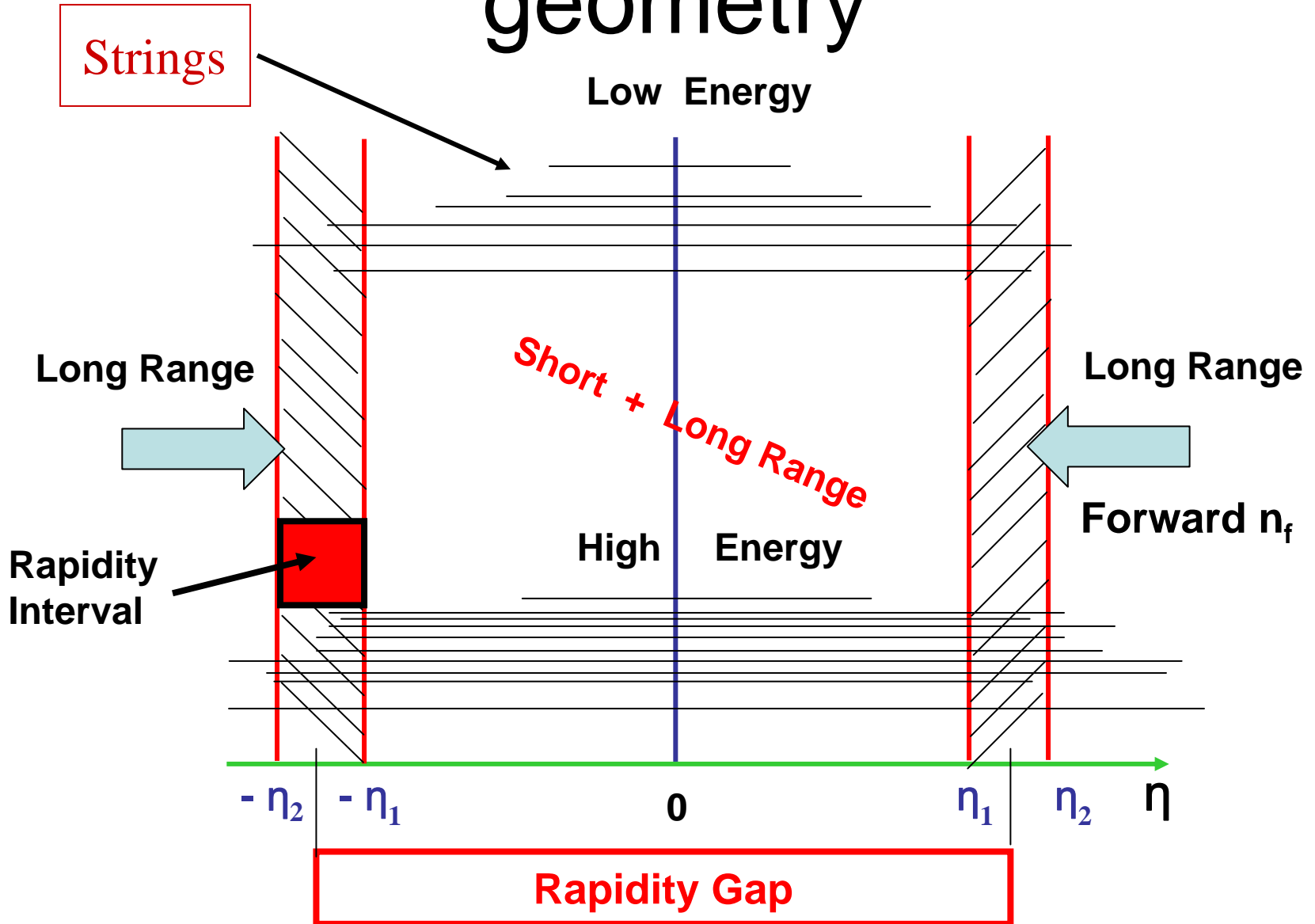


Forward-Backward multiplicity (FBM) correlations

Outline

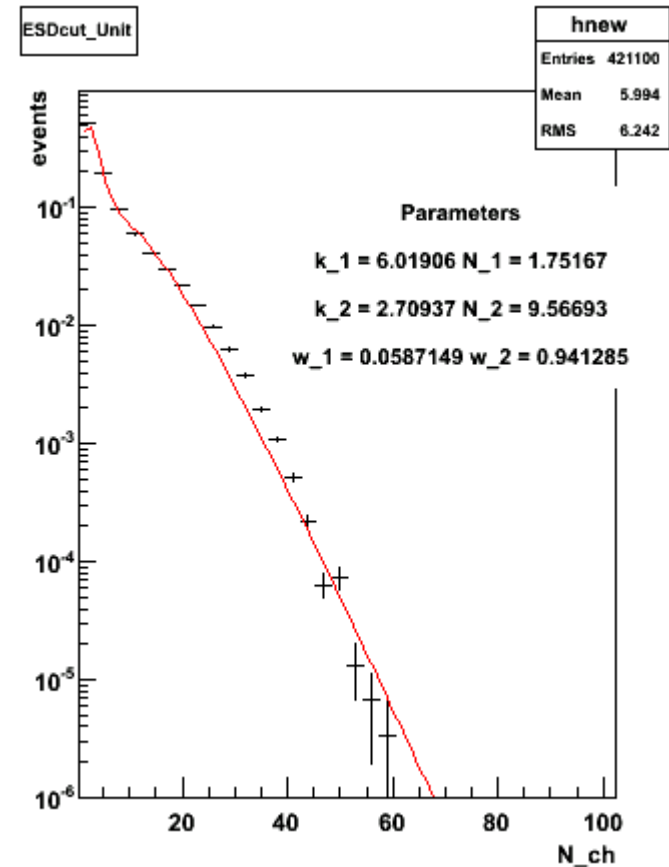
- geometry: rapidity gap/ rapidity interval
- reasons to study FBM
- forward/backward multiplicity per rapidity interval
- backward-forward/ forward-forward dispersion per rapidity gap
- conclusions

geometry

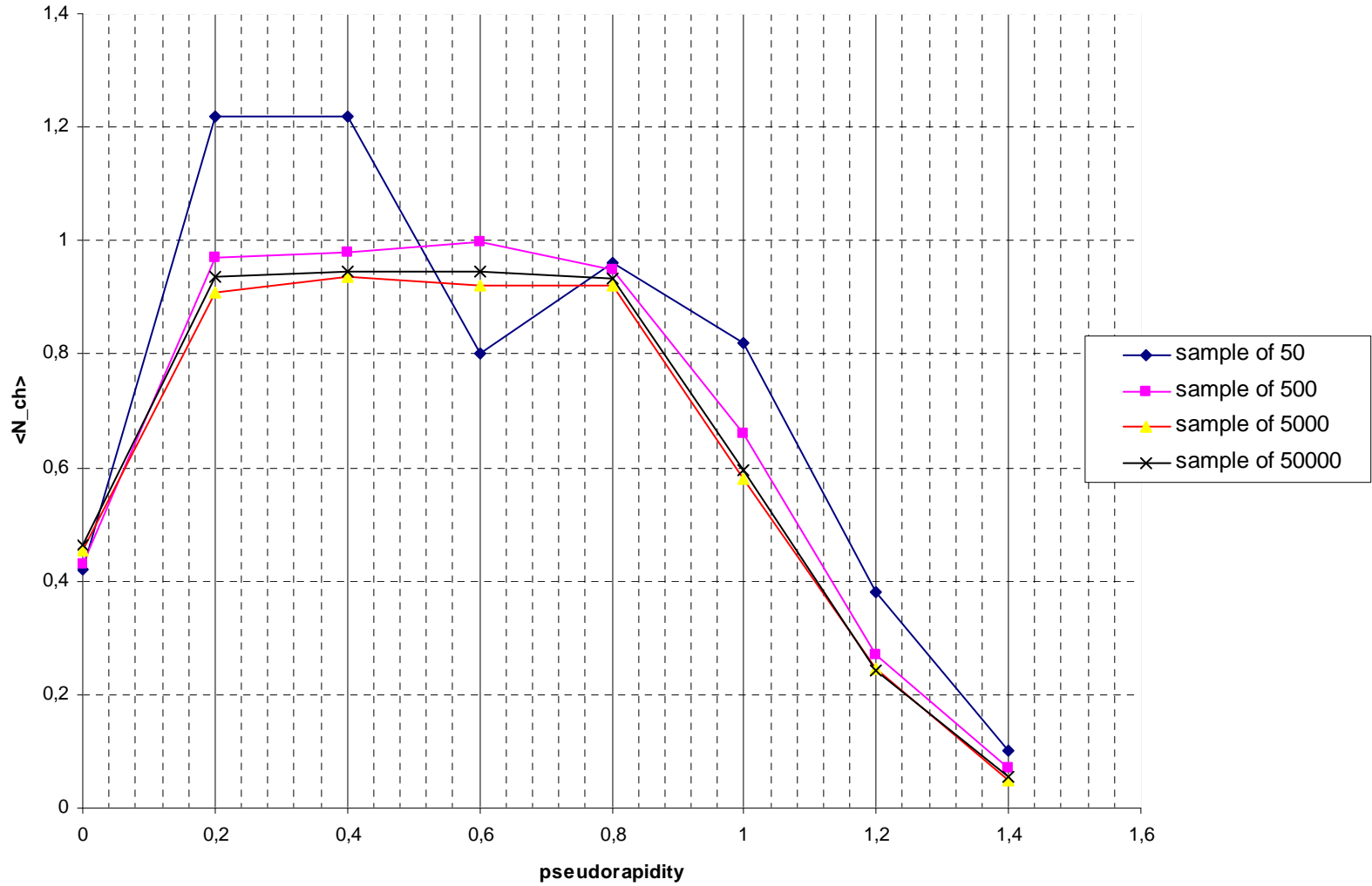


reasons

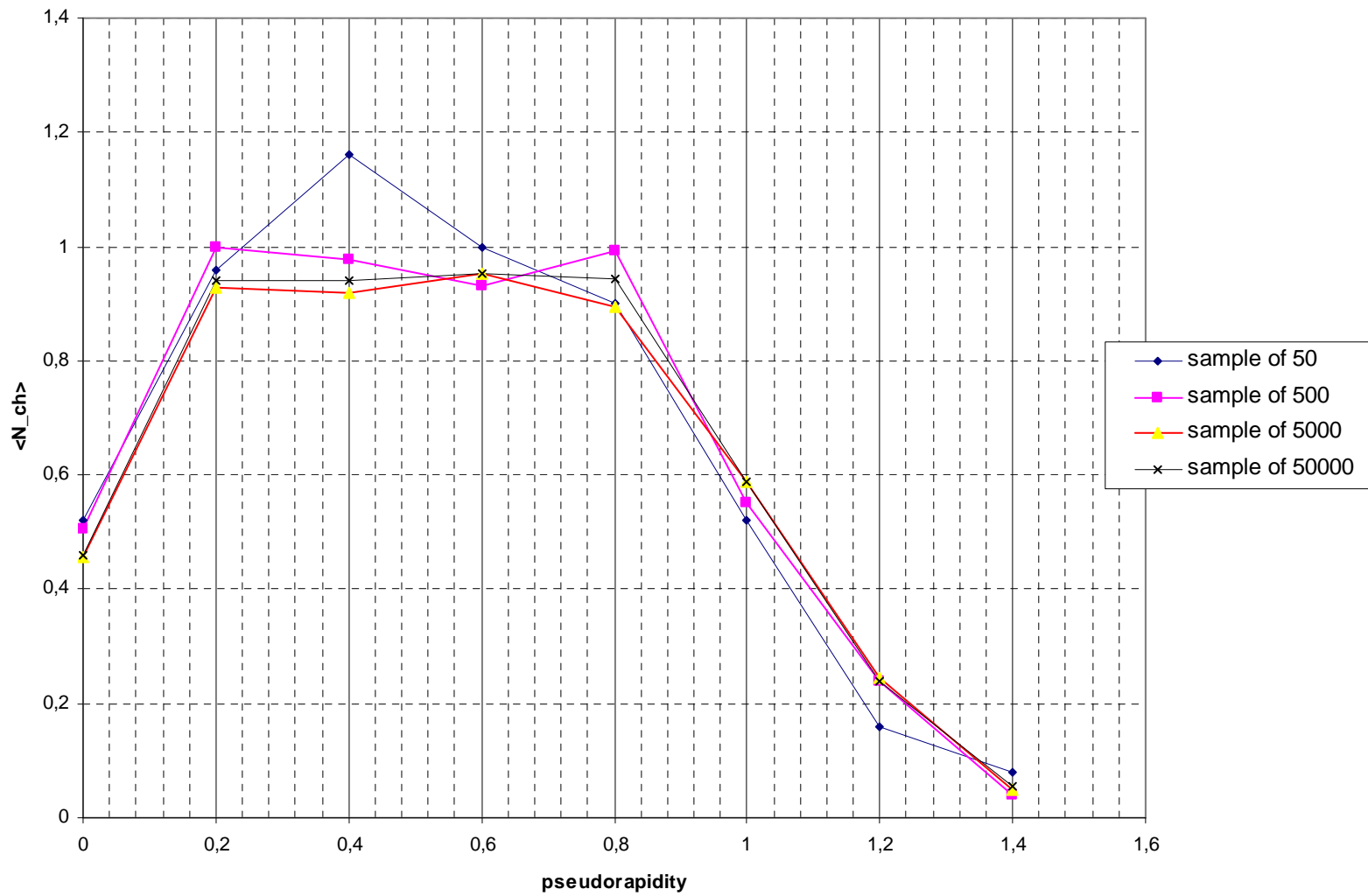
- FB correlation strenght.
 - Long range (big rapidity gap) : signature of **MPI** (multiple parton interactions)
 - "Clan model": soft + semihard fit of the multiplicity.
- FB centrality dependence: Test of the partonic core-hadronic corona model: hydro models for the sQGP



forward average multiplicity -per rapidity interval- dependence



backward average multiplicity -per rapidity interval- dependence

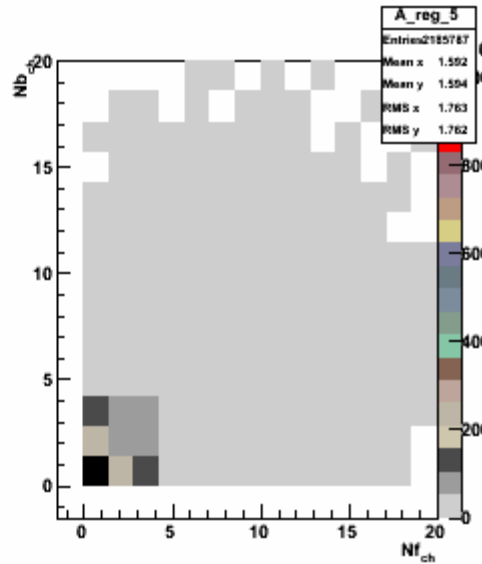
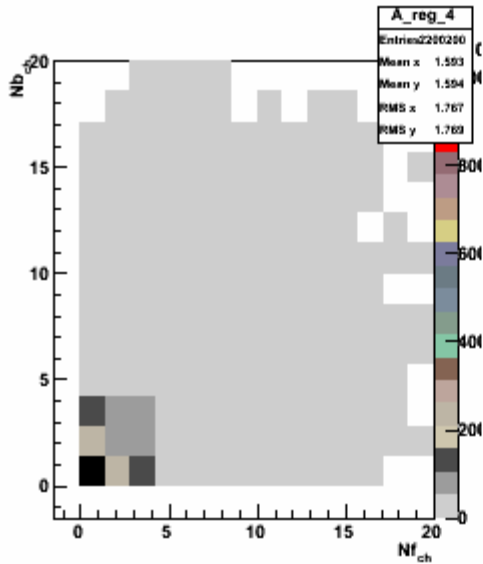


definitions

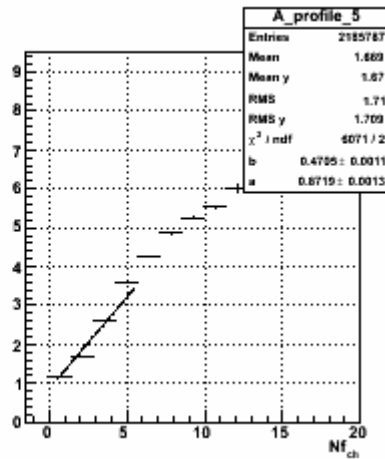
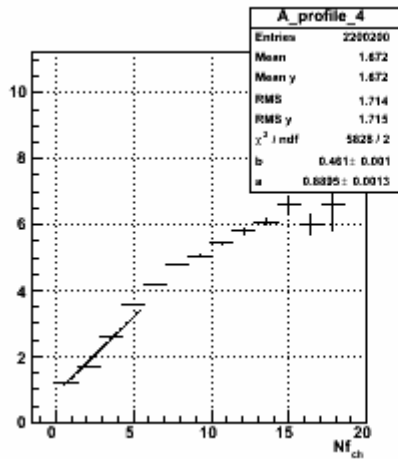
We define:

- backward-forward dispersion : D_{bf}
- forward-forward dispersion : D_{ff}

$$b = \frac{\langle N_f N_b \rangle - \langle N_f \rangle \langle N_b \rangle}{\langle N_f^2 \rangle - \langle N_f \rangle^2} = \frac{D_{bf}^2}{D_{ff}^2}$$

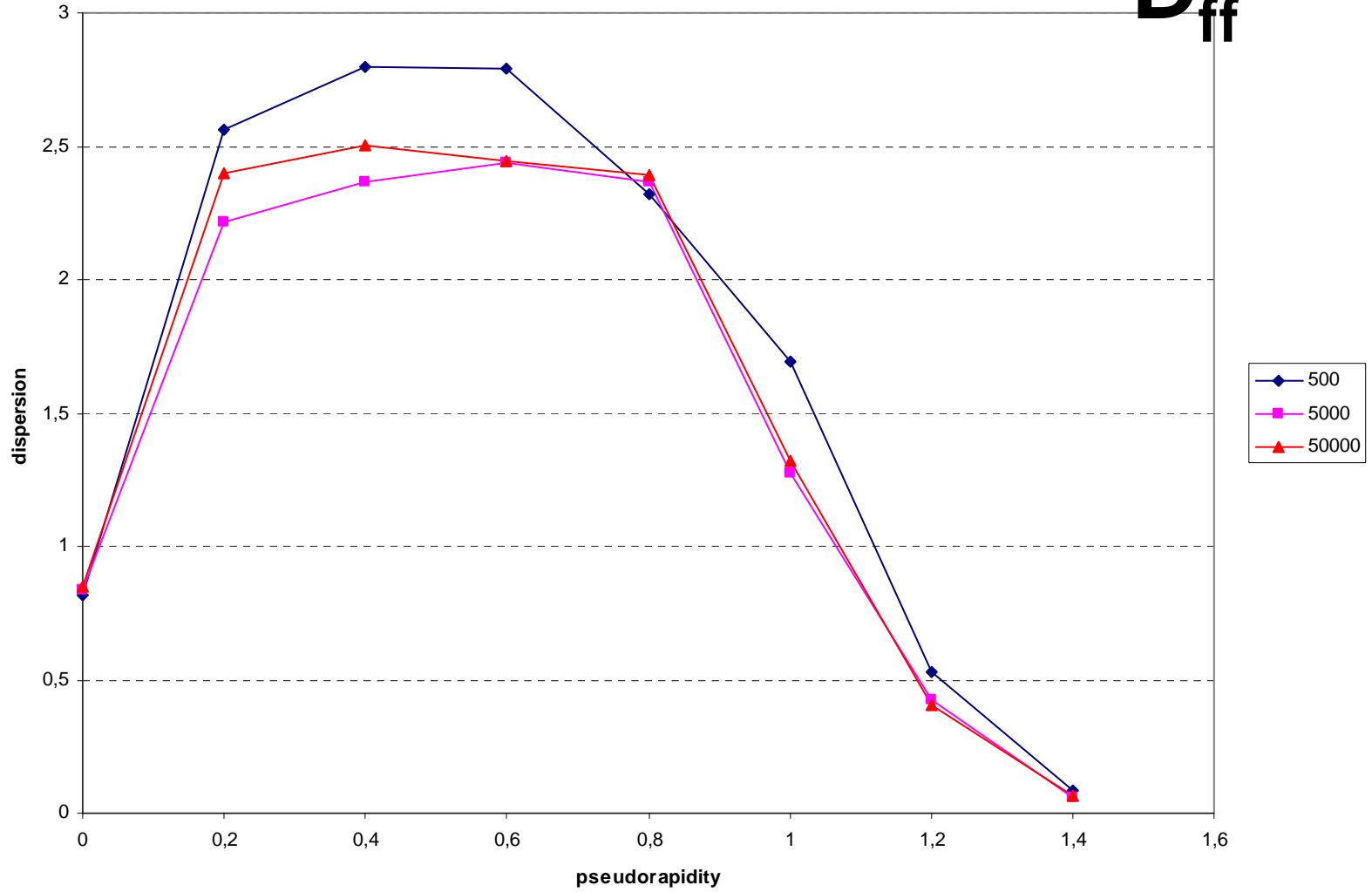


one correlation strength (b) and two dispersions (D_{ff} , D_{fb}) per pseudorapidity interval



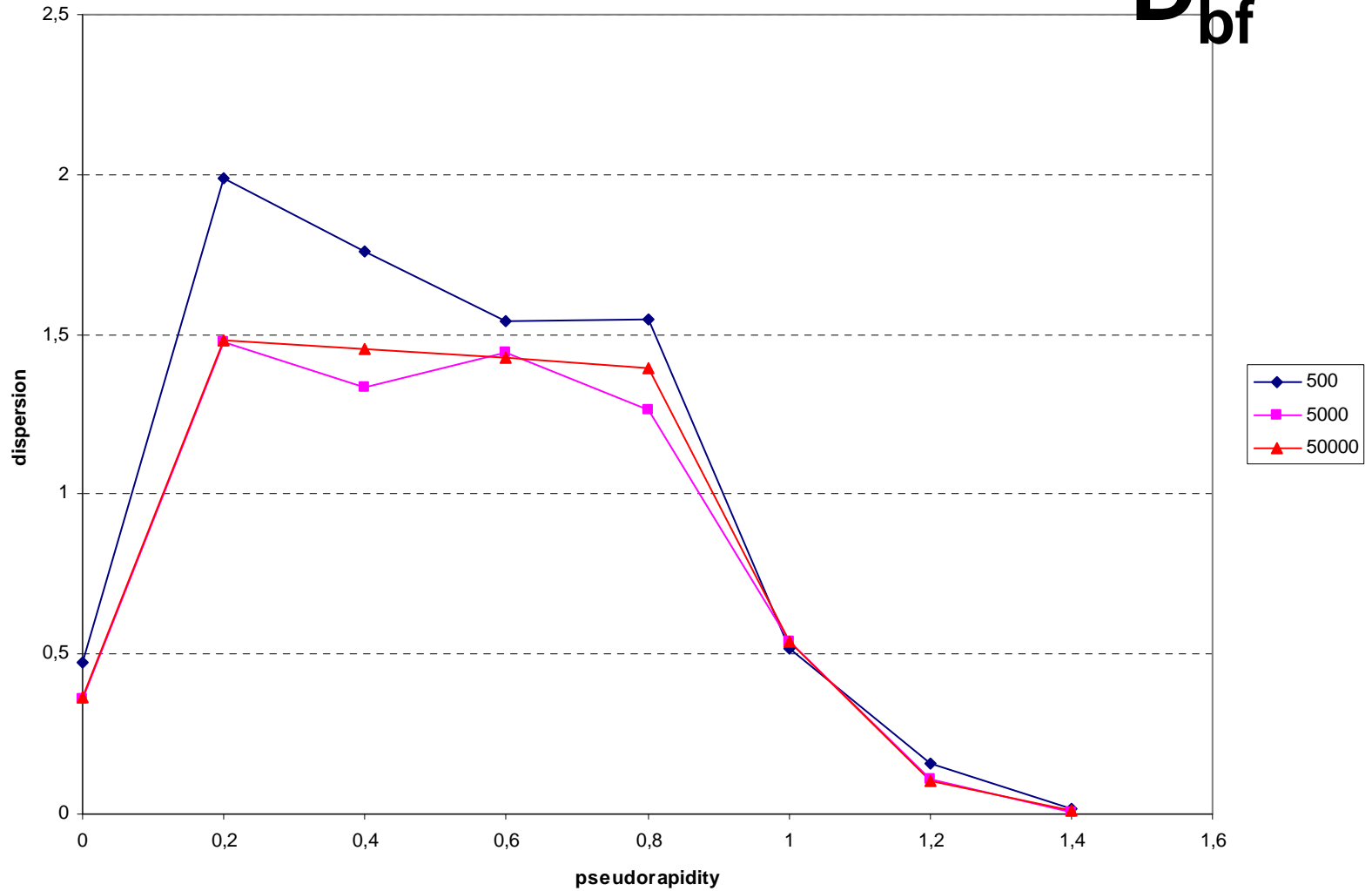
forward-forward variation with sample size

D_{ff}^2

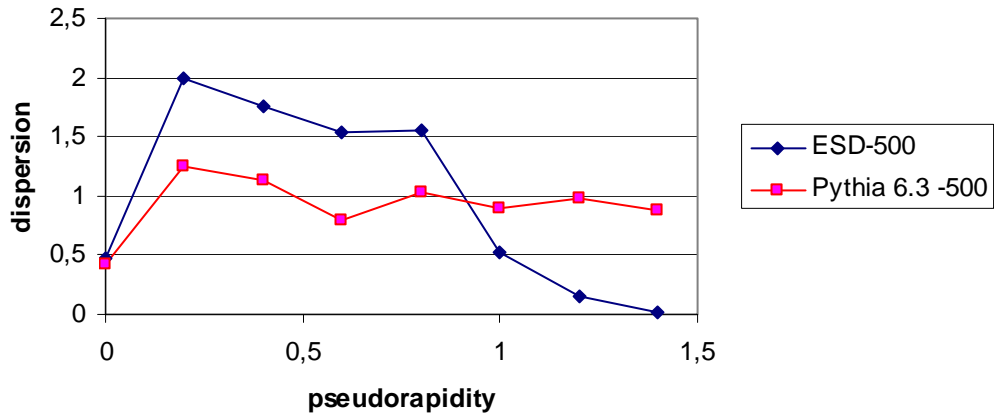


Backward-forward dispersion sample size dependency

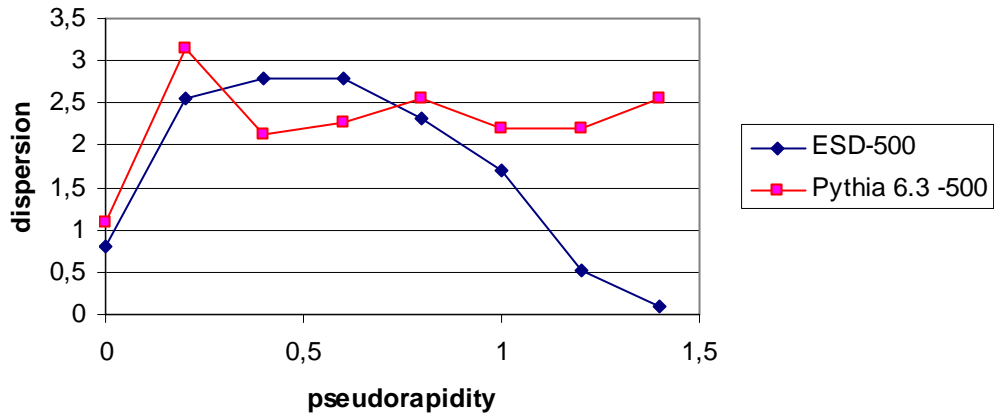
D_{bf}^2



backward-forward - Pythia/ESD comparison



forward-forward -Pythia/ESD comparison

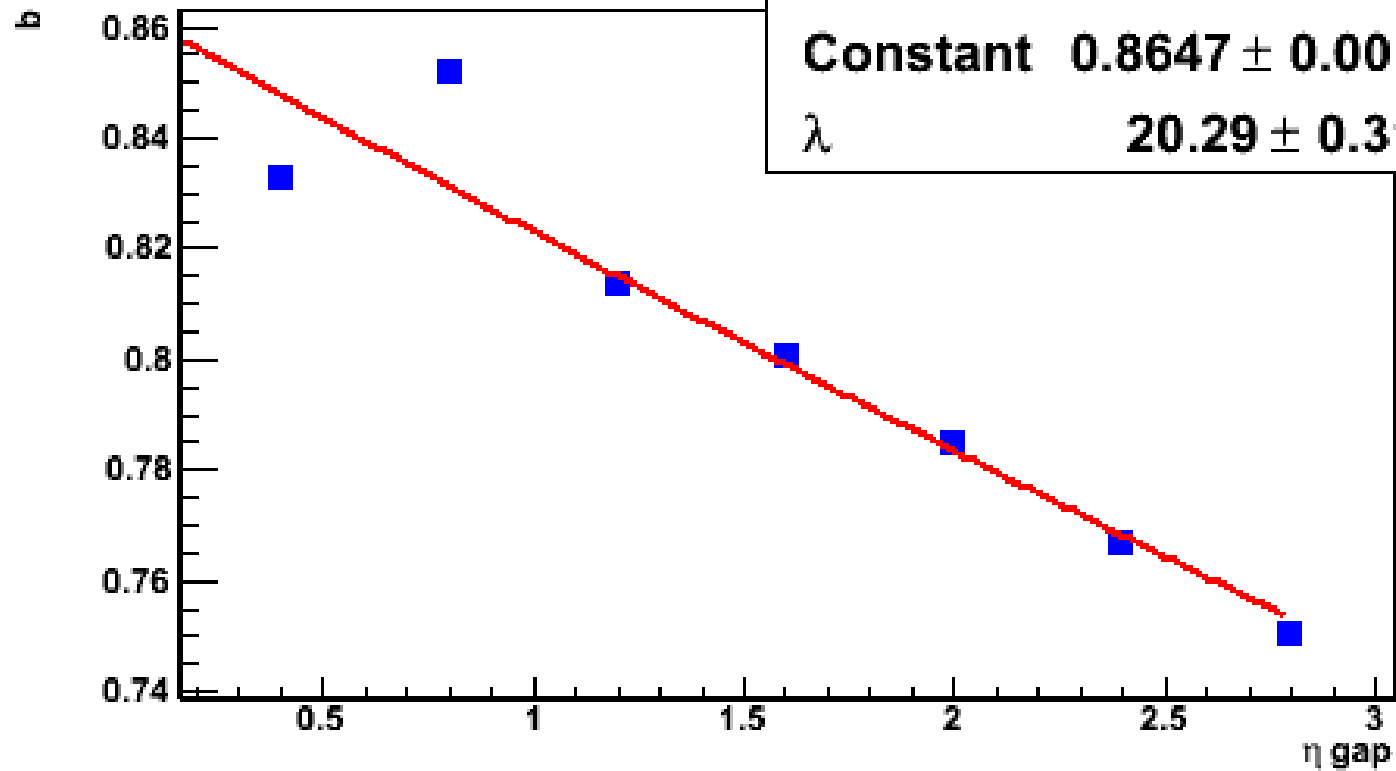


conclusions

- (Partial) agreement with A.Kumar results (PWG2- July 2008)
- It's visible the effect of the TPC Central Electrode in multiplicity.

b dependence

χ^2 / ndf **369.4 / 5**
Constant **0.8647 ± 0.00117**
 λ **20.29 ± 0.3137**



slice	center	<f>50	<f>500	<f>5000	<f>50000
0	1,4	0,100	0,070	0,050	0,054
1	1,2	0,380	0,270	0,246	0,242
2	1	0,820	0,660	0,581	0,596
3	0,8	0,960	0,950	0,920	0,935
4	0,6	0,800	0,998	0,920	0,946
5	0,4	1,220	0,980	0,937	0,945
6	0,2	1,220	0,970	0,910	0,935
7	0	0,420	0,430	0,453	0,465
total	--	5,920	5,328	5,018	5,117
slice	center	50	500	5000	50000
0	1,4	0,080	0,040	0,049	0,054
1	1,2	0,160	0,240	0,244	0,240
2	1	0,520	0,550	0,588	0,587
3	0,8	0,900	0,992	0,896	0,942
4	0,6	1,000	0,932	0,953	0,952
5	0,4	1,160	0,978	0,919	0,940
6	0,2	0,960	1,000	0,927	0,942
7	0	0,520	0,504	0,456	0,460
total		5,300	5,236	5,032	5,118

My Documents

My multiplicity analysis