

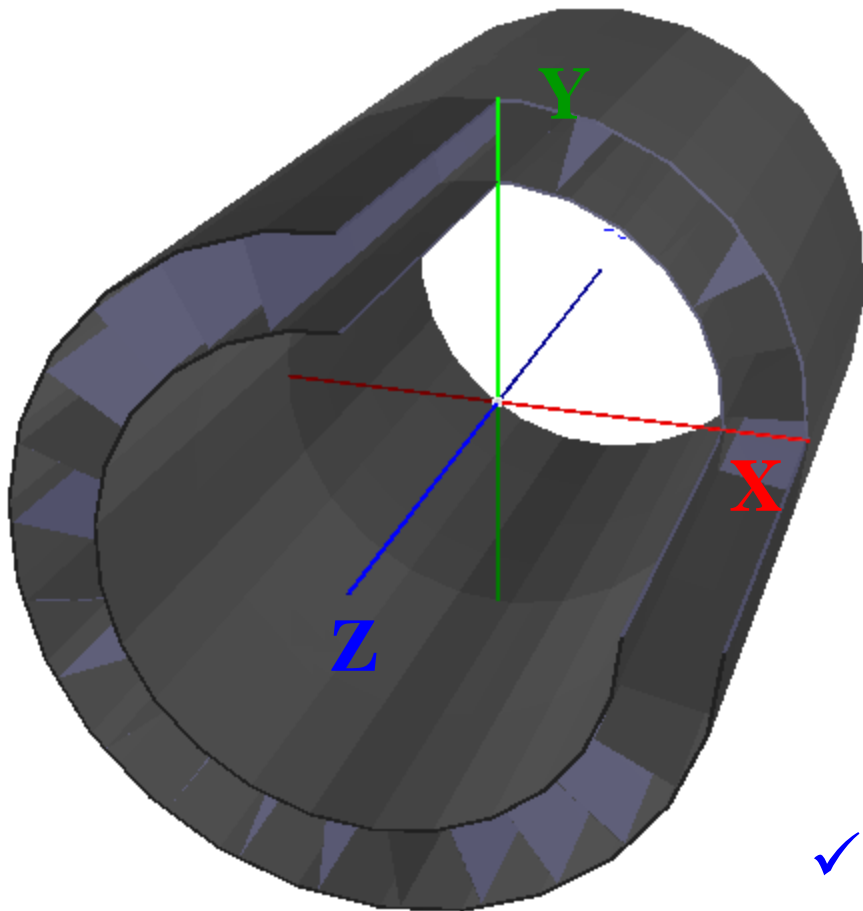


НИЦ «Курчатовский институт» –  
Институт теоретической и  
экспериментальной физики (ИТЭФ)

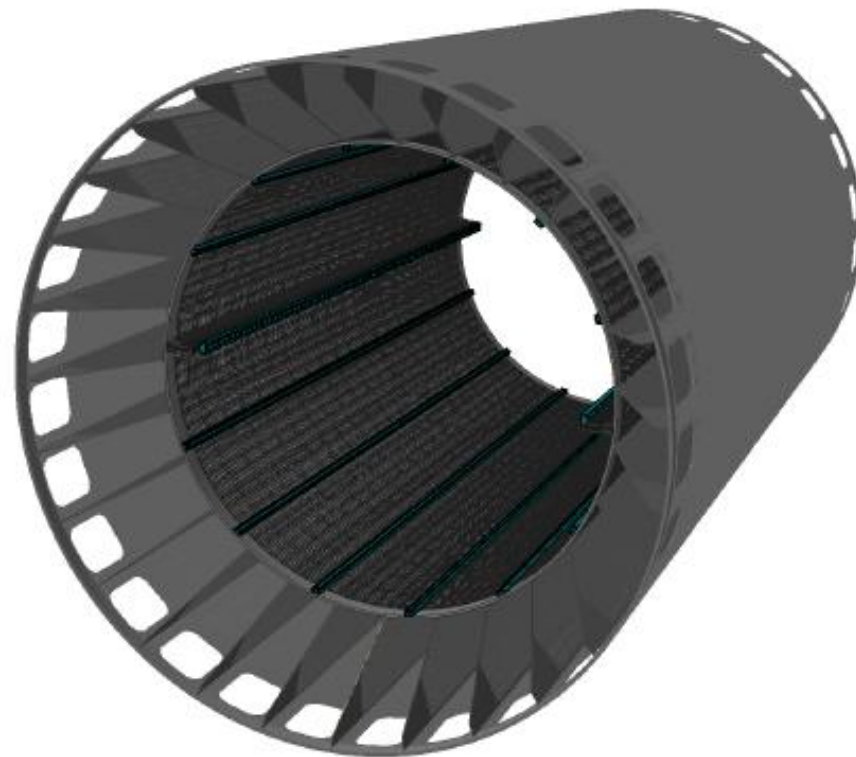


## *Impact of the MPD power frame on simulation result*

*M.A. Martemianov*

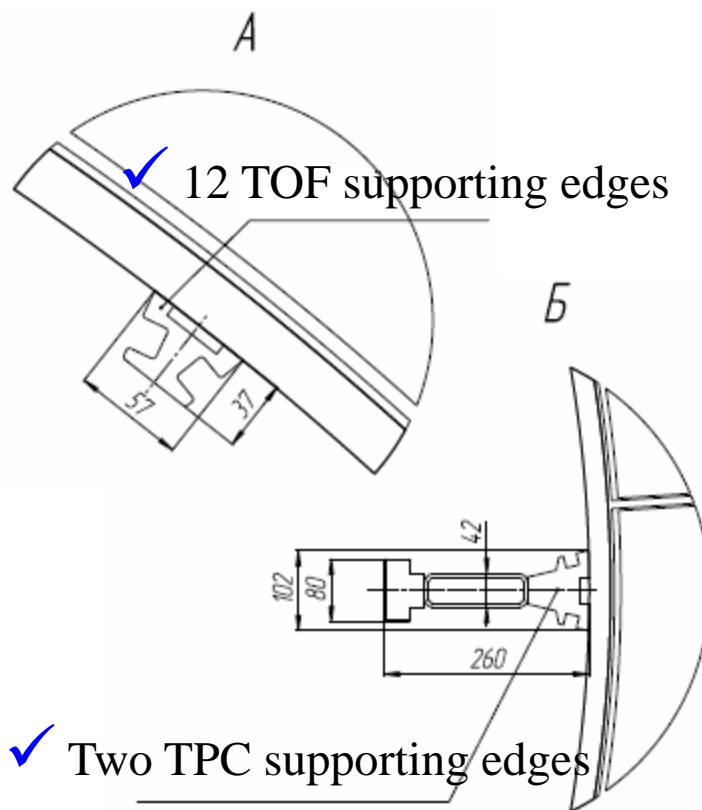
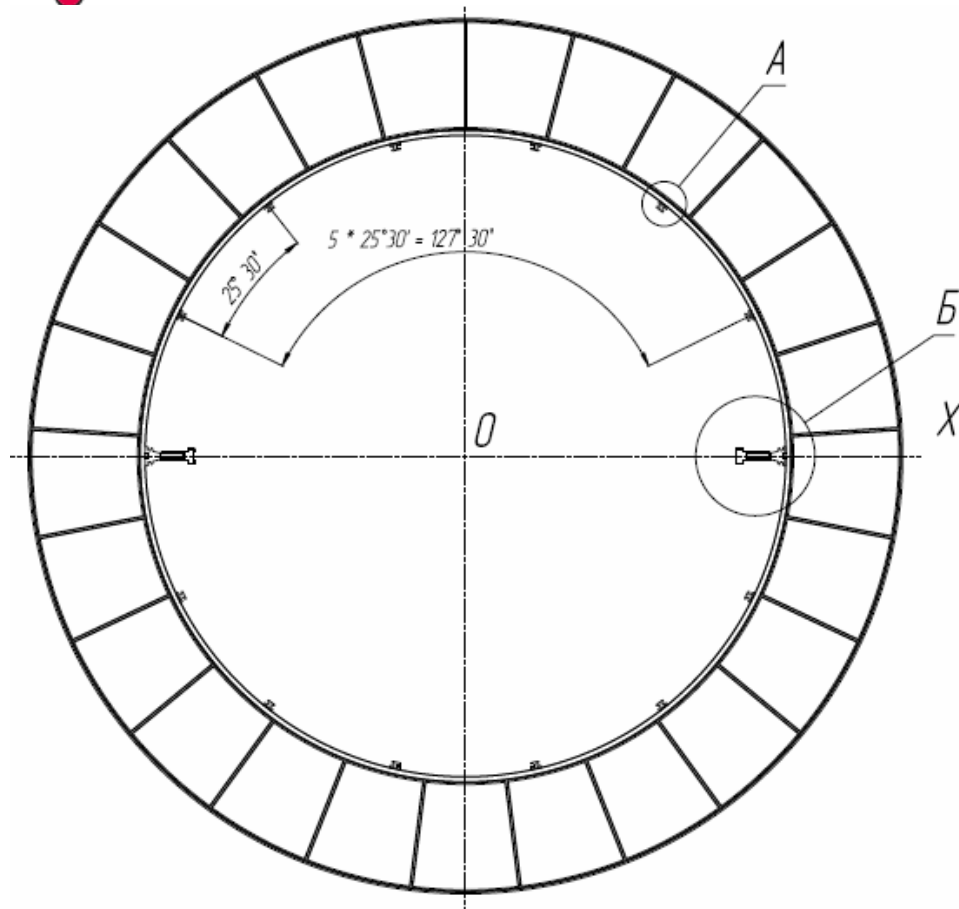


- ✓ Geometry / version № 3
- ✓ Total length ~ 610 cm. (covered all towers space)

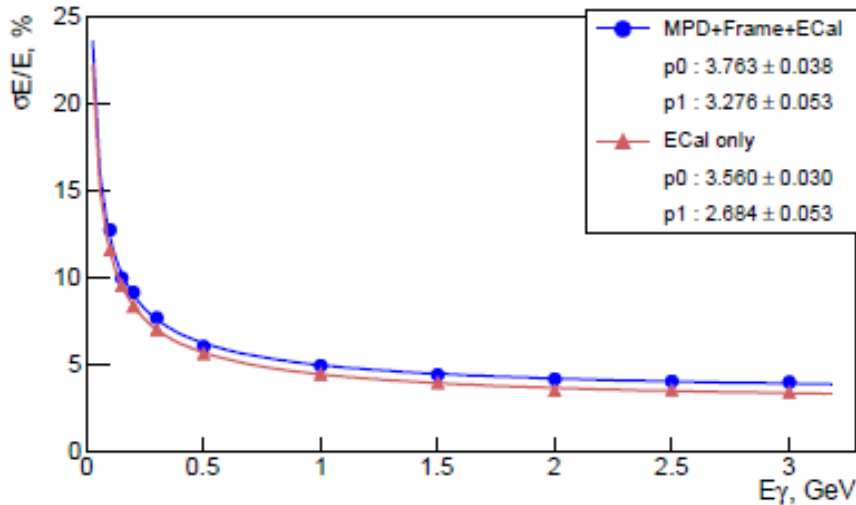
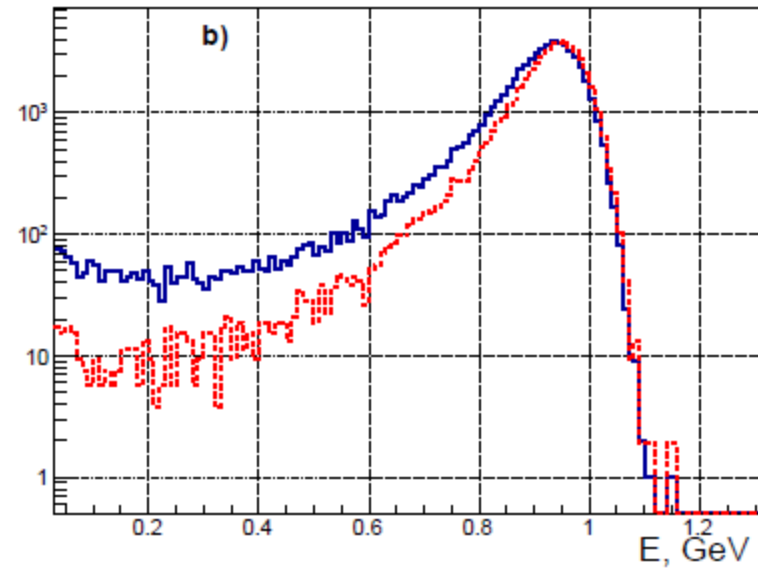
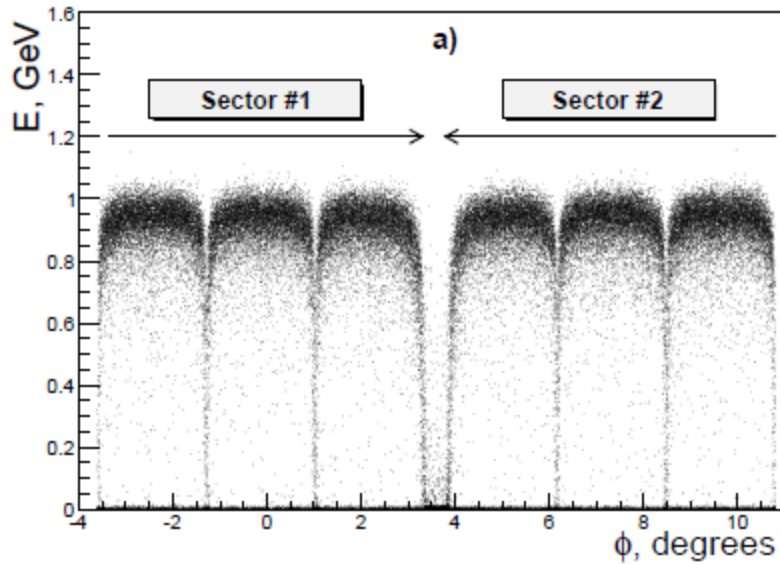


- ✓ VBLHEP design

Low length = 624 cm. ; High length = 826 cm. ;  
Power frame spans other part of the MPD  
(Magnet, TOF, TPC)



- ✓ Total radial length ( $R \sim 172 \text{ cm}$ ) is equal to 1080 cm
- ✓ Supporting edges are not synchronized (Number : 25 ECal ( $1.4 \text{ cm} + 7 \times 0.2 \text{ cm}$ ); 12 TOF ( $5.7 \text{ cm}$ ); 2 TPC ( $10.2 \text{ cm}$ )), so ECal efficiency loss  $\sim 23^\circ + 24^\circ + 7^\circ \sim 54^\circ$  (14.8 %)

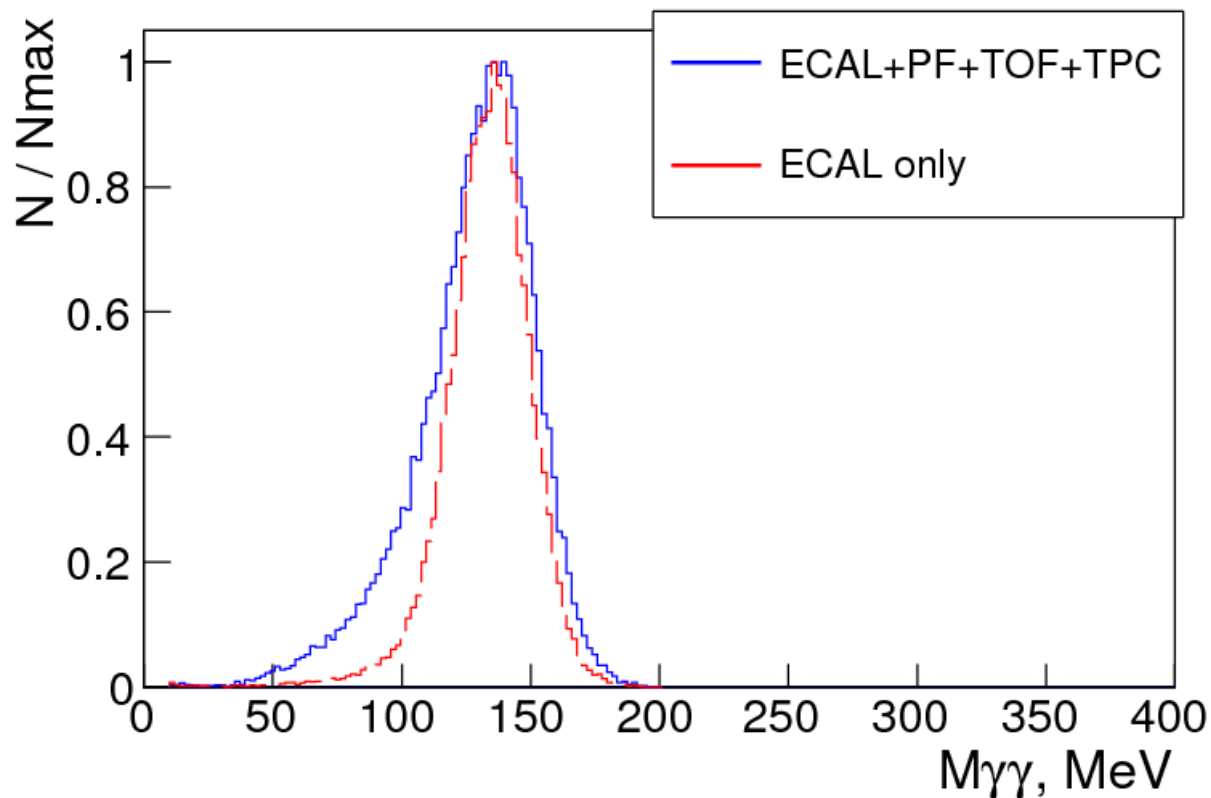


↑ ↑ Cut to exclude walls of the supporting structure

✓ Contribution of the power frame is not significant for energy resolution

BOX generator (one  $\pi^0$  per event)

$\pi^0$ ,  $p = 200$  M $\beta$ B/c



①

Power frame parts gives energy tail for low region, also angle distribution become jagged as a result of the different walls

②

Power frame should be updated in the frame of the [emc\\_v3.root](#) file. Also, more important part to add in TPC and TOF additional rails and walls

③

All edges/wall/rails are not synchronized and has a different location. Additional effects to cluster reconstruction should be close or little greater

**Thank You**