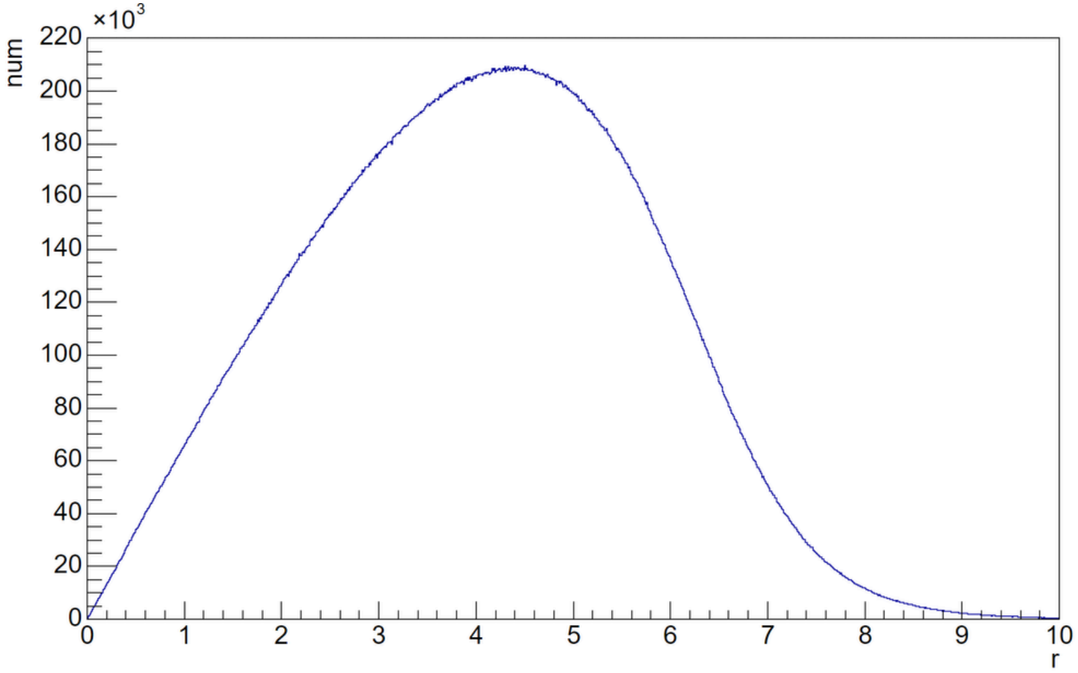
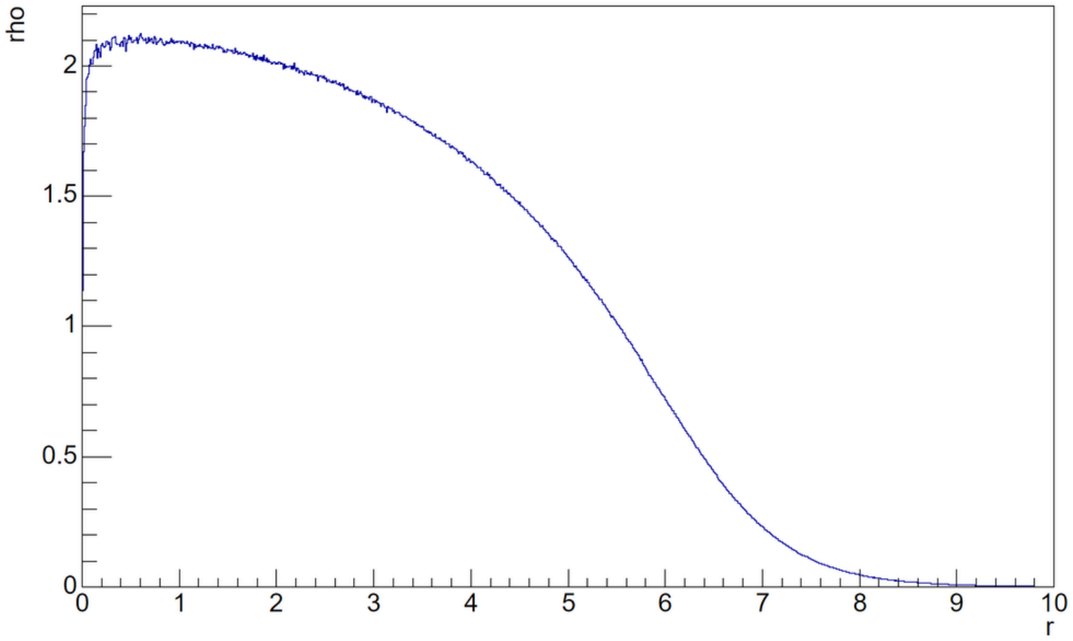
Presentation


num
×10^3
220
200
180
160
140
120
100
80
60
40
20
0
0 1 2 3 4 5 6 7 8 9 10
r

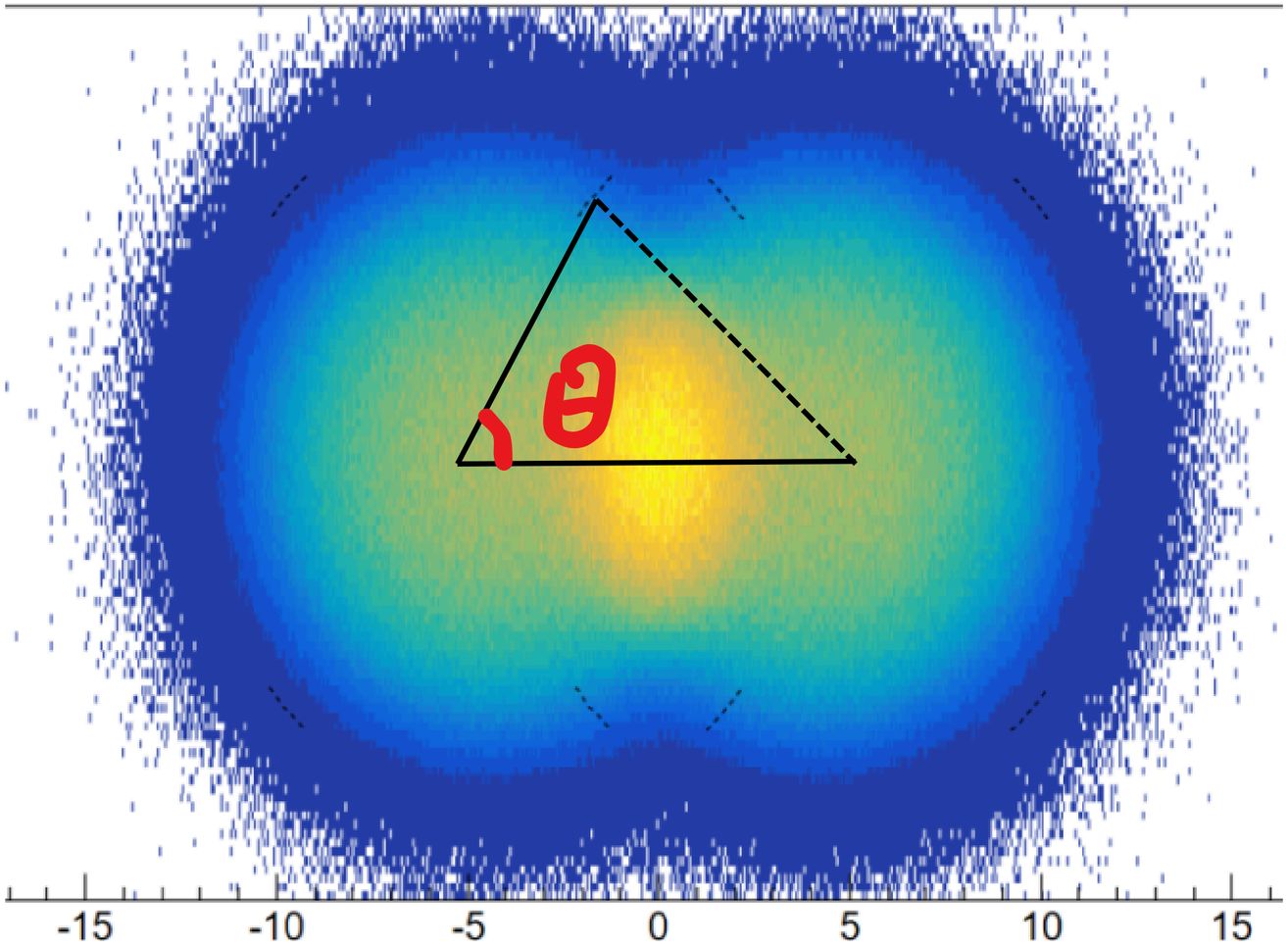
核子数分布

数密度

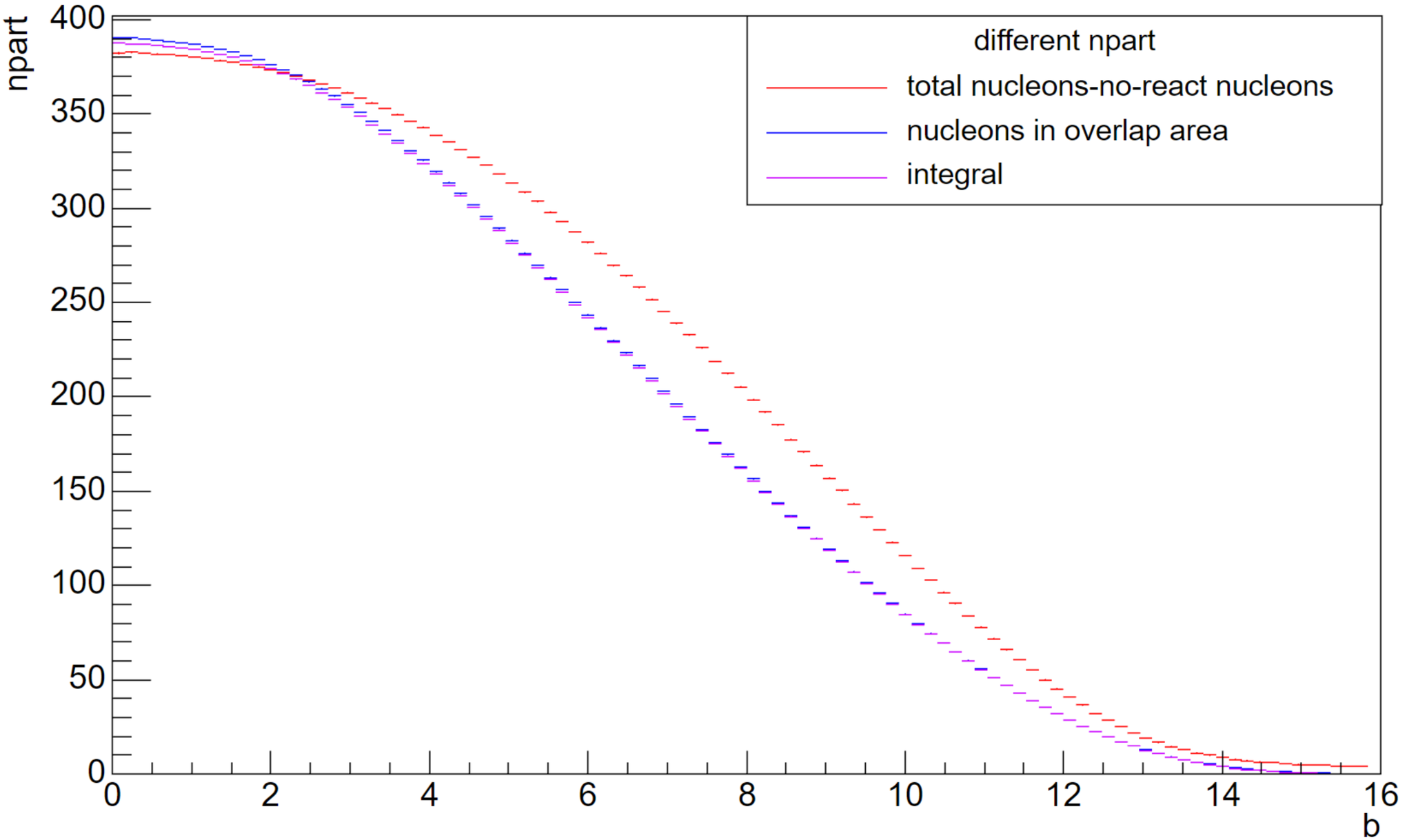

rho
2
1.5
1
0.5
0
0 1 2 3 4 5 6 7 8 9 10
r

npart3 calculation

```
Double_t npart3_d = 0;
if ( nucrad(197) > b/2)
{
    Double_t r = fabs(b-nucrad(197));
    if (b <= nucrad(197))
    {
        for(Int_t i=0; i <(Int_t)(r*100)+1;i++)
        {
            npart3_d = npart3_d+2*Pi*i*0.01*0.01*rho_r_1->GetBinContent(i+1);
        }

    }
    while( r <= nucrad(197))
    {
        Double_t cos_theta = (r*r + b*b - nucrad(197)*nucrad(197))/(2*r*b);
        if(cos_theta>1)
        {
            cos_theta=1;
        }
        if(cos_theta<-1)
        {
            cos_theta=-1;
        }
        Double_t theta = acos(cos_theta);

        Double_t rho = rho_r_1->GetBinContent((Int_t)(r*100)+1);
        npart3_d = npart3_d + 2*theta*r*0.01*rho;
        r = r + 0.01;
    }
}
npart3_d = npart3_d*2;

Int_t npart3=int(npart3_d+gRandom->Rndm());
```



三种npart比较

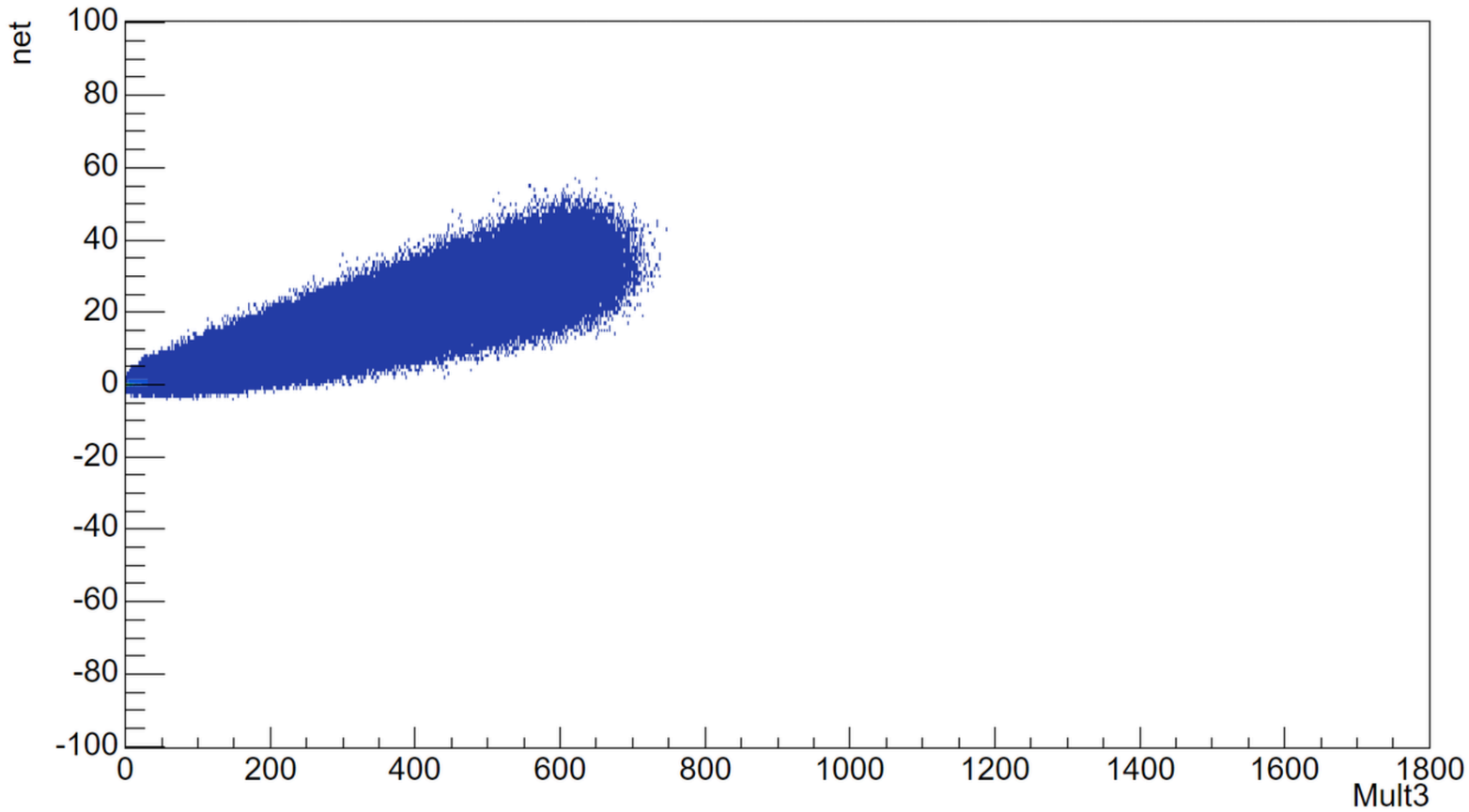

npart_b
npart
b
different npart
total nucleons-no-react nucleons
nucleons in overlap area
integral
0
50
100
150
200
250
300
350
400
0
2
4
6
8
10
12
14
16

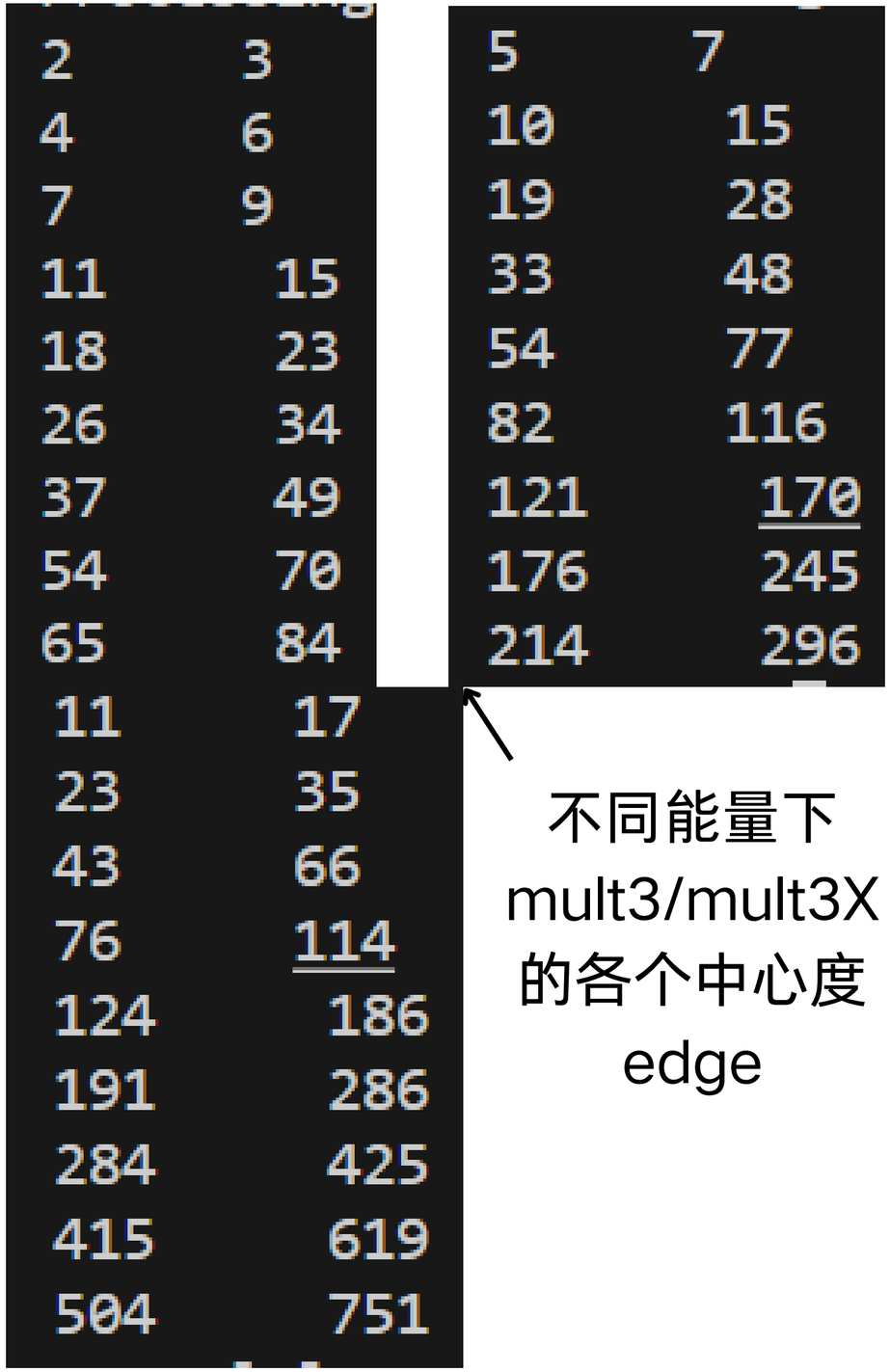
```
h2_npart1vsb;1
h2_npart2vsb;1
h2_npart3vsb;1
h2_npart1vs2;1
h2_npart1vs3;1
h2_npart2vs3;1
h2_npart1vsnet;1
h2_npart2vsnet;1
h2_npart3vsnet;1
h2_Mult3SE8vsnet;1
h2_Mult3Svsnet;1
h2_Mult3E8vsnet;1
h2_Mult3vsnet;1
h2_Mult3XE8vsnet;1
h2_Mult3Xvsnet;1
h2_Mult3AE8vsnet;1
h2_Mult3Avsnet;1
```

RefMult3：|eta| < 1.0的π±和K±

RefMult3X：|eta| < 1.6的π±和K±

质子反质子接收度：0.4 GeV/c < pT < 2.0 GeV/c, |y| < 0.5



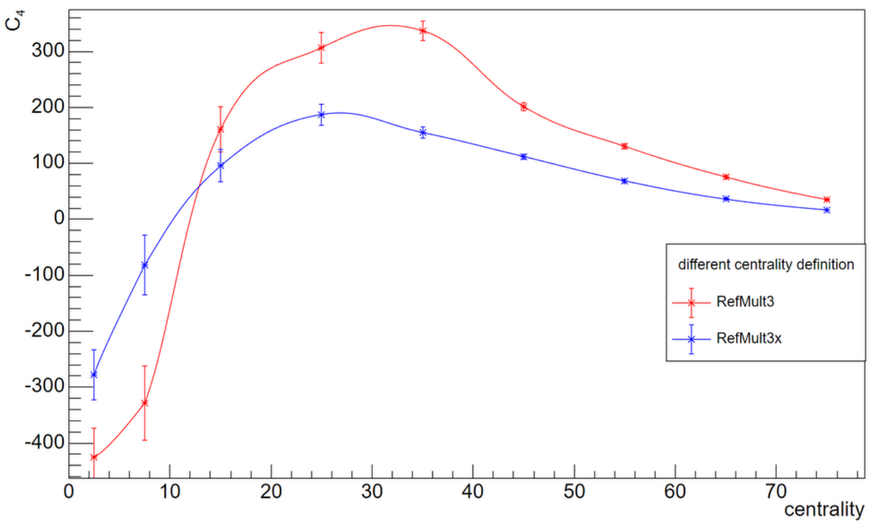


不同能量下mult3/mult3X的各个中心度edge

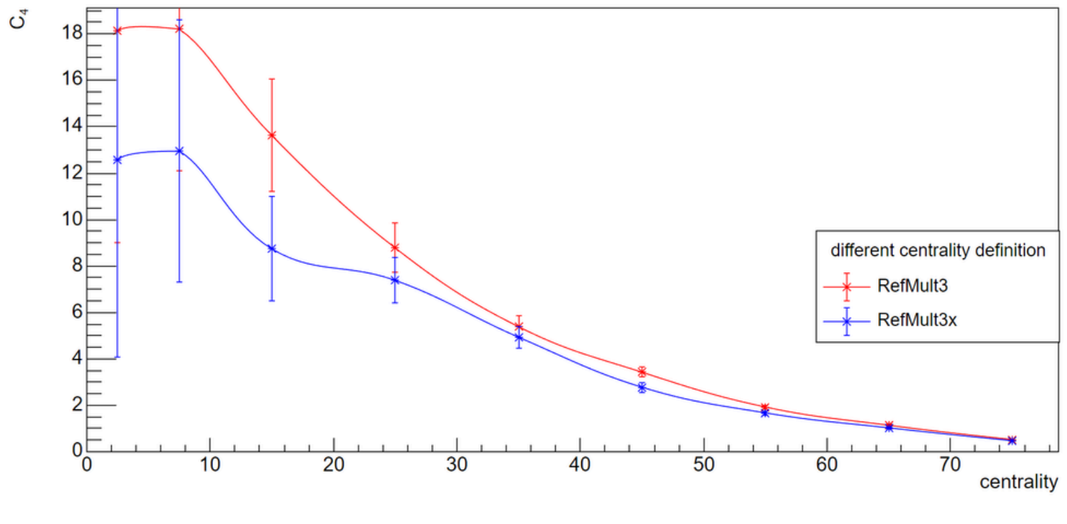
Centrality (%)	N_{ch} values at different $\sqrt{s_{NN}}$ (GeV)								
	200	62.4	54.4	39	27	19.6	14.5	11.5	7.7
0–5	725	571	621	522	490	448	393	343	270
5–10	618	482	516	439	412	376	330	287	225
10–20	440	338	354	308	289	263	231	199	155
20–30	301	230	237	209	196	178	157	134	105
30–40	196	149	151	136	127	116	103	87	68
40–50	120	91	90	83	78	71	63	53	41
50–60	67	51	50	47	44	40	36	30	23
60–70	34	26	24	24	22	20	19	15	11
70–80	16	12	10	11	10	9	13	7	5

The centrality is determined from the uncorrected charged particle multiplicity within pseudorapidity $|\eta|<1$ after excluding the protons and antiprotons.

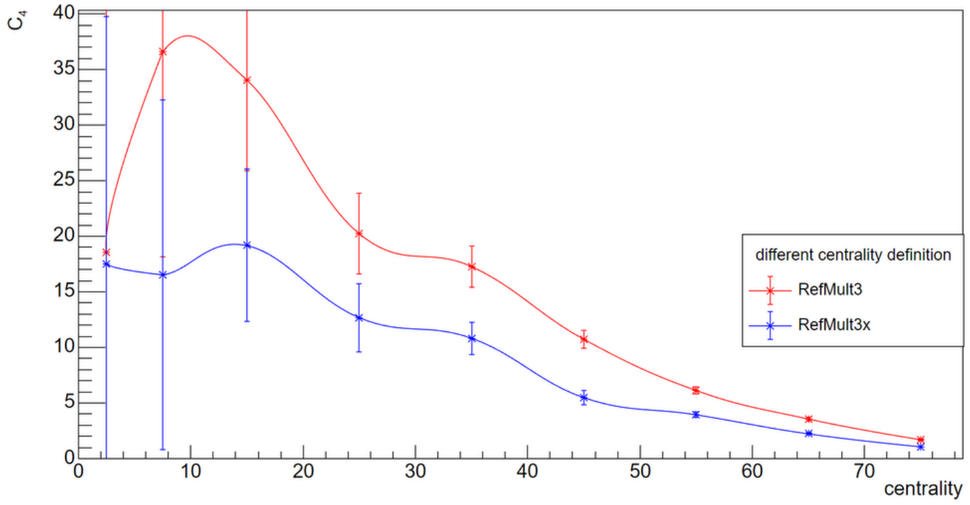
different multiplicity defined centrality



3.0GeV

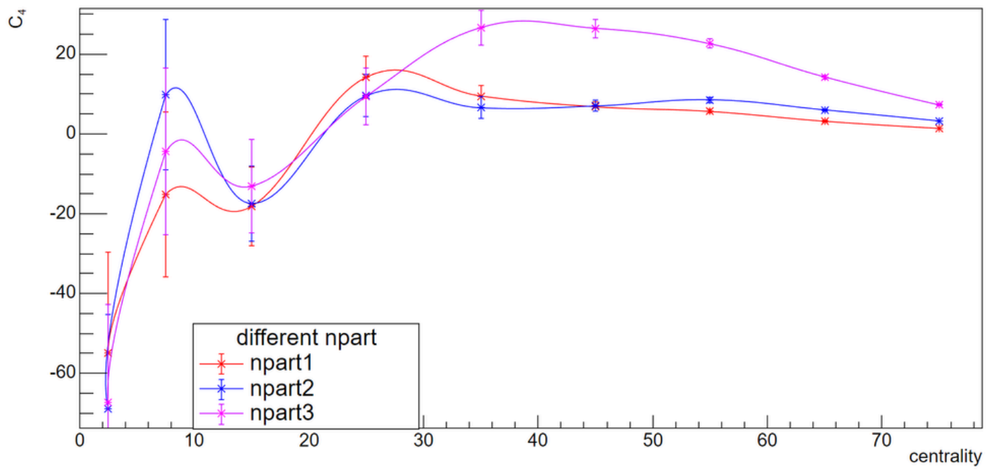


5.2GeV

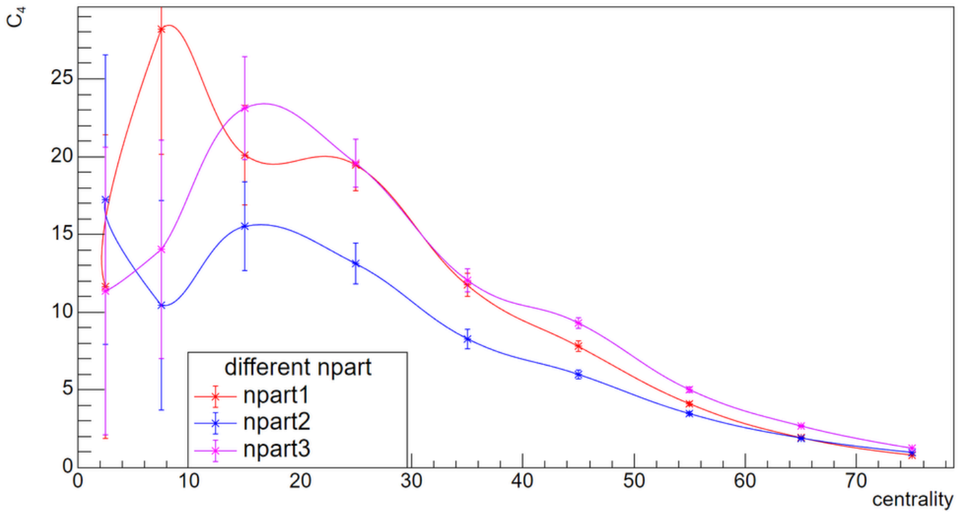


14.6GeV

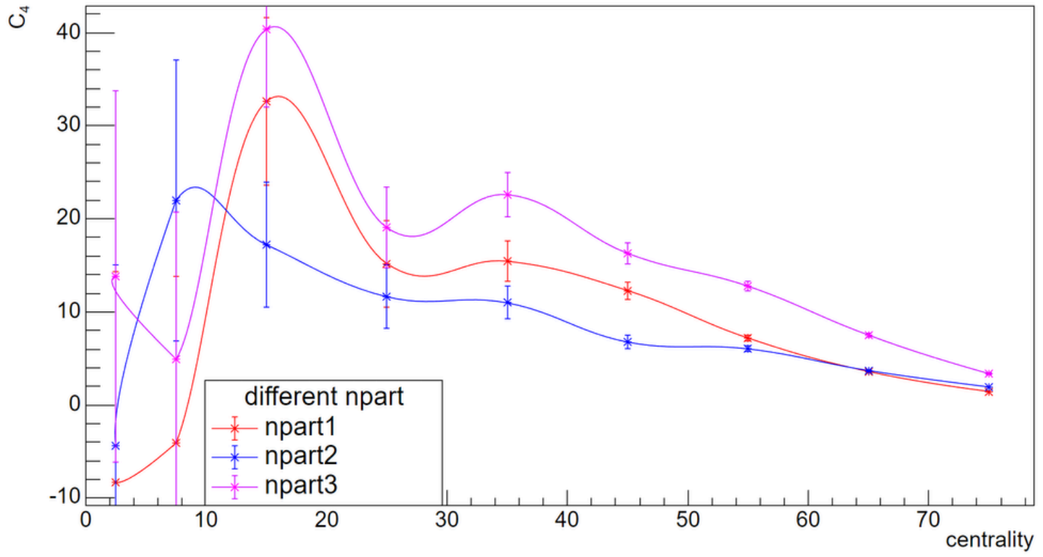
different npart defined centrality



18	12	12
36	26	26
64	46	46
102	74	74
148	111	111
203	160	159
263	221	220
327	300	298
358	348	345



13	12	12
26	25	25
49	45	45
81	73	73
123	110	109
174	158	157
236	220	219
305	299	298
341	347	345



17	13	13
34	26	26
61	46	46
96	74	74
141	112	111
193	160	159
254	221	220
321	300	298
354	348	345