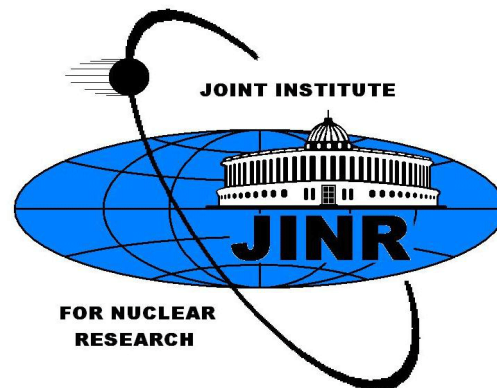
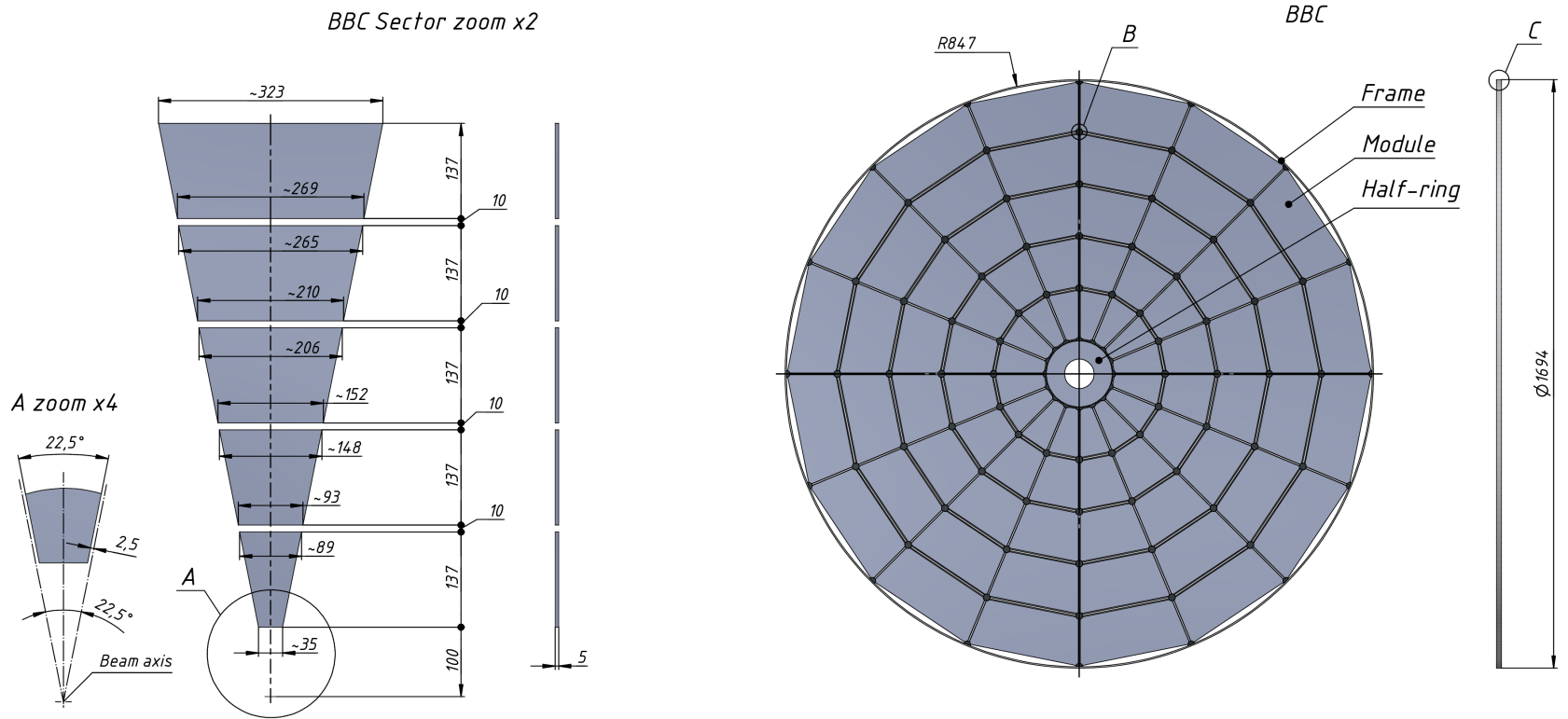


First results of the pp - and dd -scattering simulation for BBC SPD

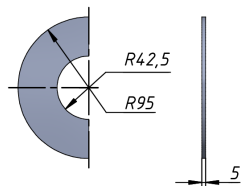
A.A Terekhin, J. Kurmanaliev
Joint Institute for Nuclear Research, Dubna, Russia



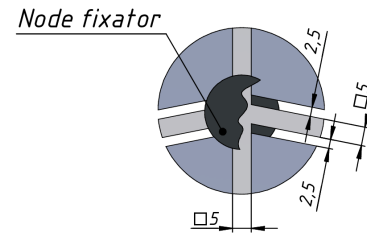
BBC - detector



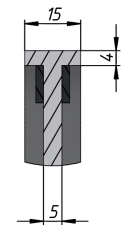
BBC Half-ring zoom x2



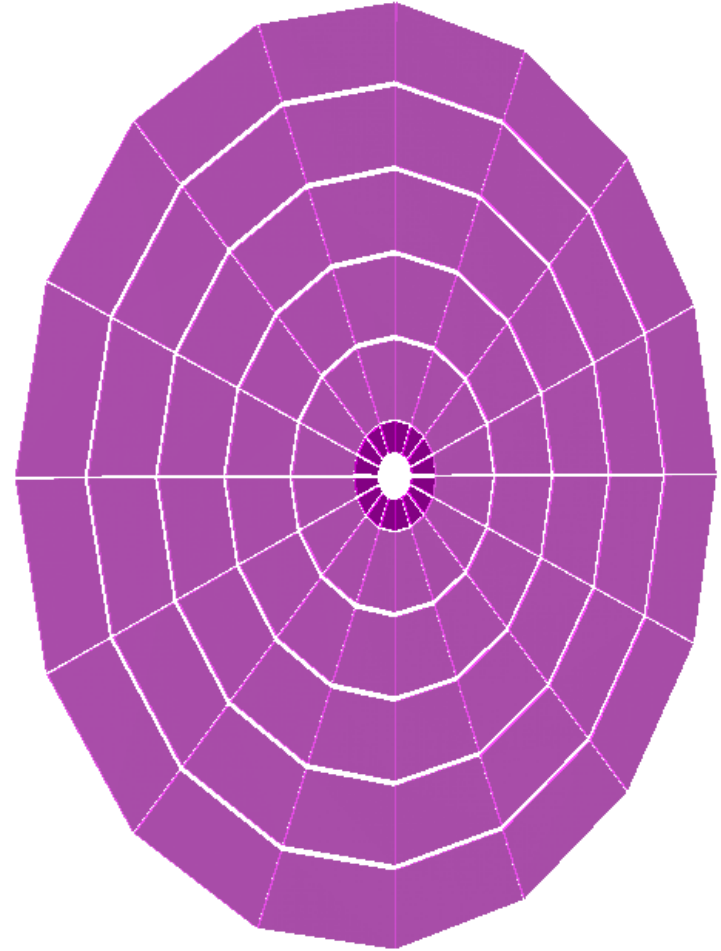
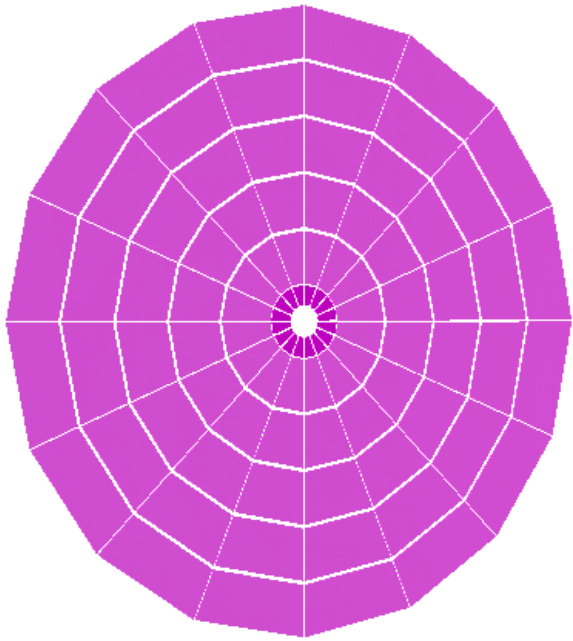
B zoom x10



C zoom x10

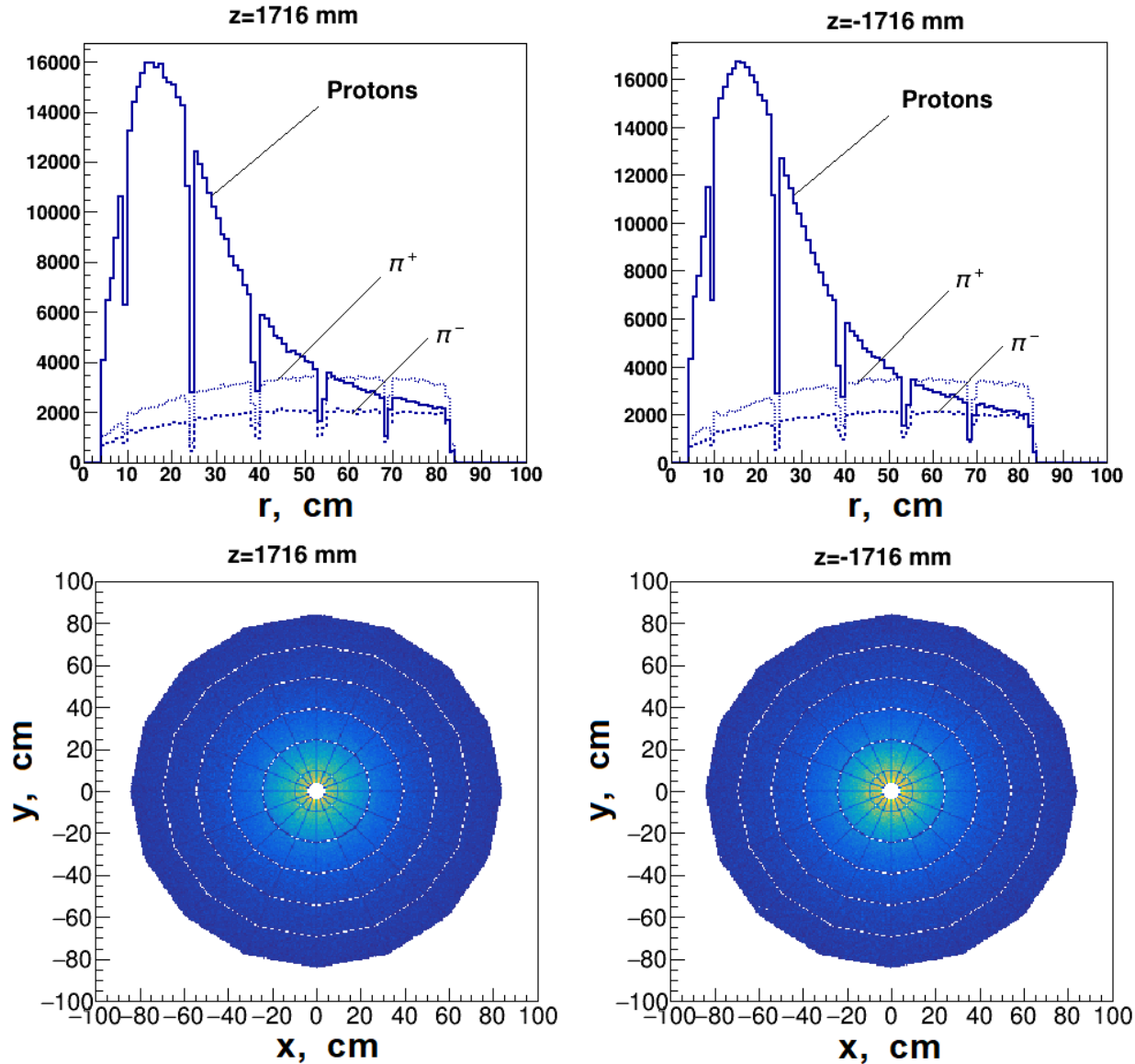


The simulation of the BBC - geometry



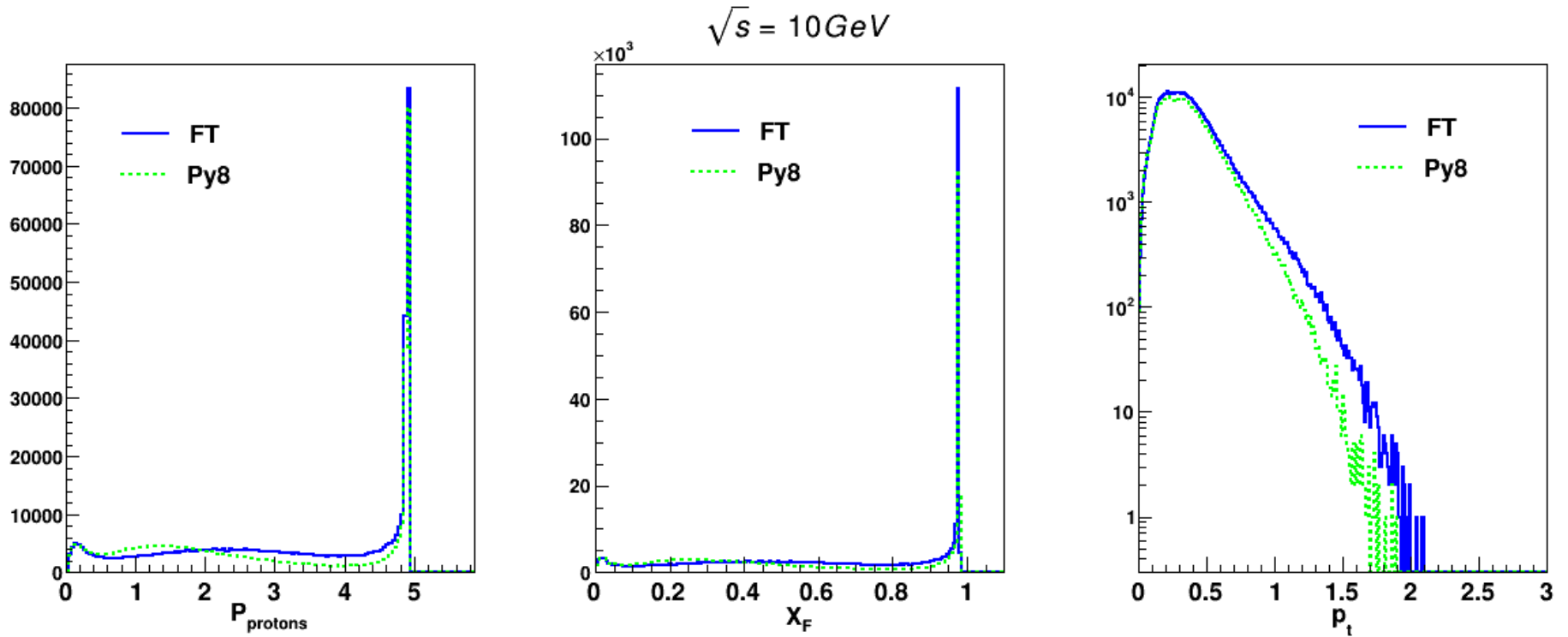
The simulation of the pp -scattering by the FT generators

$$\sqrt{s} = 6.2 \text{ GeV}, N_{\text{total}} = 1 * 10^6 \text{ events}$$



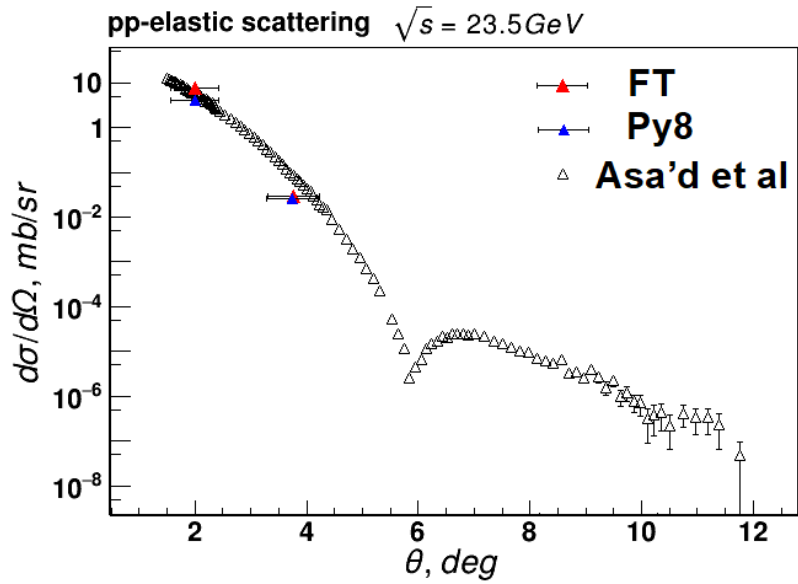
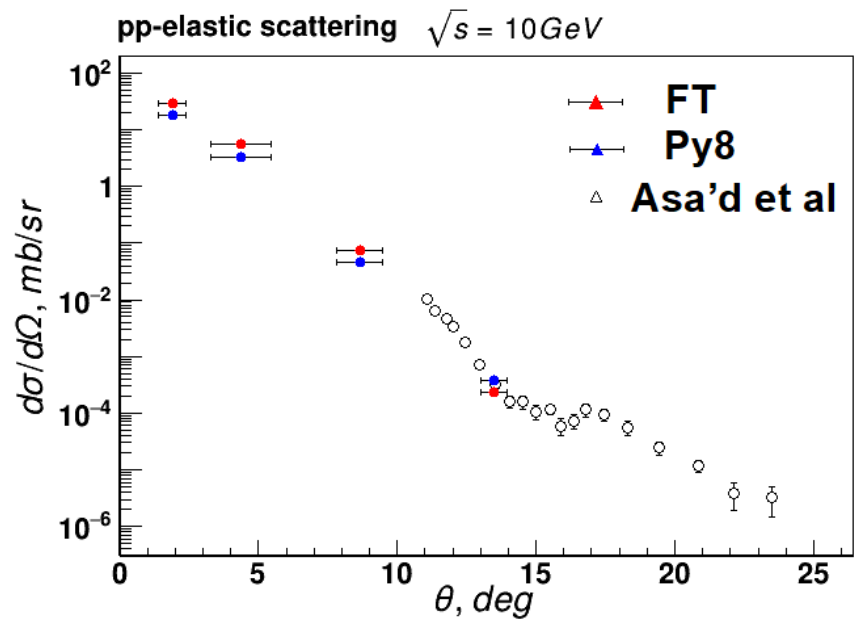
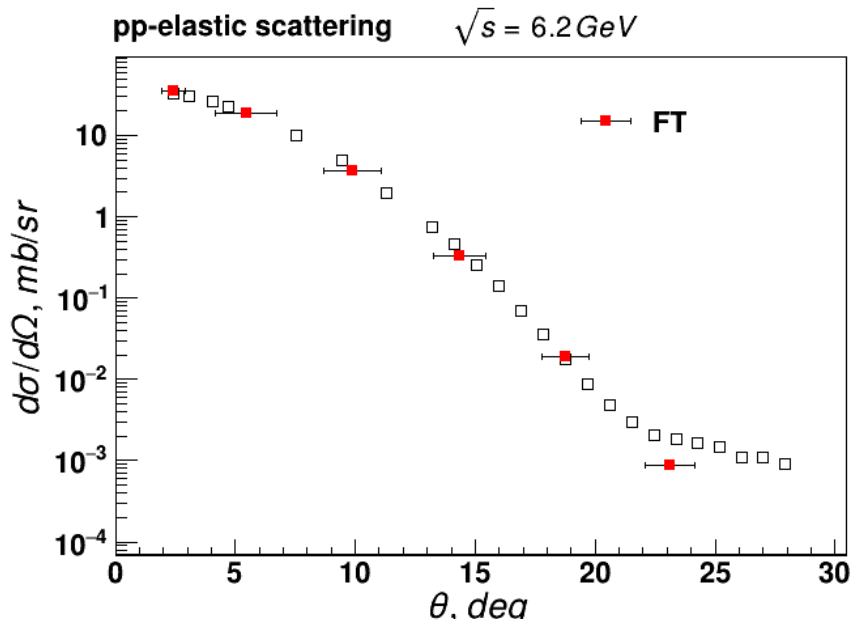
The simulation of the pp -scattering by the FT and Py8 generators

$\sqrt{s} = 10 \text{ GeV}$, $N_{\text{total}} = 1 \cdot 10^6 \text{ events}$



The simulation of the pp -scattering by the FT and Py8 generators

$\sqrt{s} = 6.2, 10$ and 23.5 GeV, $N_{\text{total}} = 1 \cdot 10^6$ events

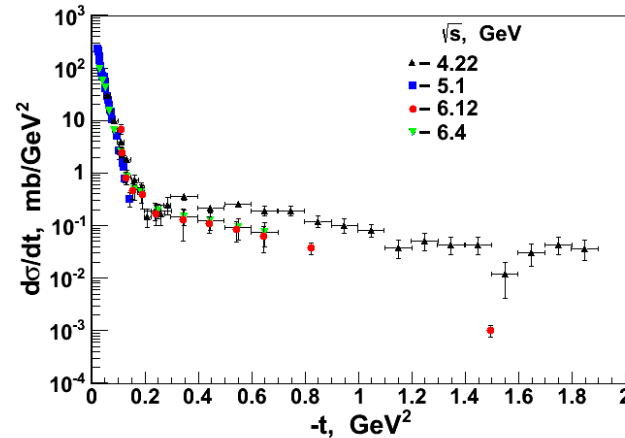


The simulation of the dd -elastic scattering by the Pluto generators

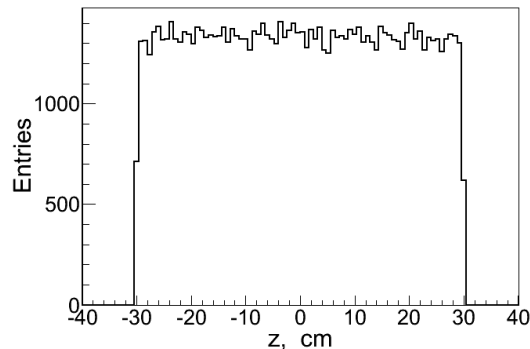
$$\sqrt{s} = 6.2 \text{ GeV}, N_{\text{total}} = 3 \cdot 10^6 \text{ events}$$

The angle dependences of the differential cross section was used to simulation.

Experimental data for the differential cross section



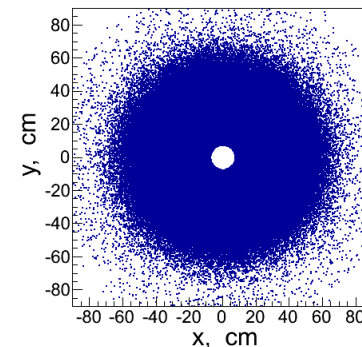
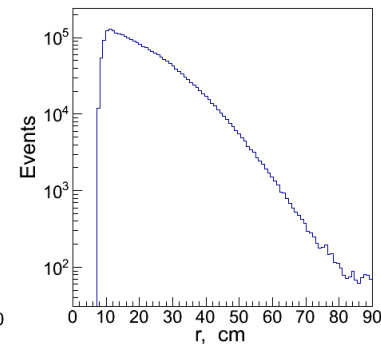
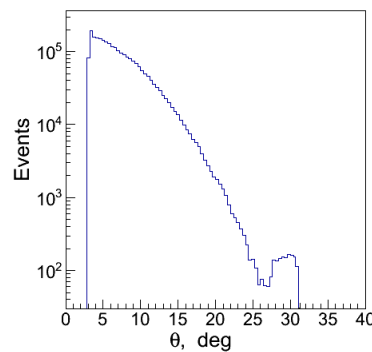
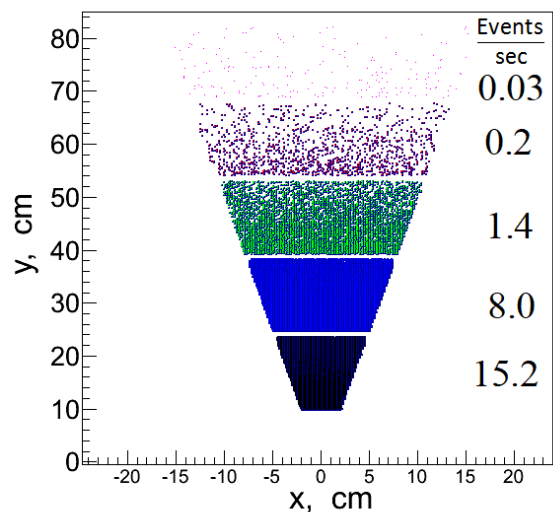
The BBC-geometry was used to the simulation. The point interaction position was calculated by random number generator with uniform distribution.



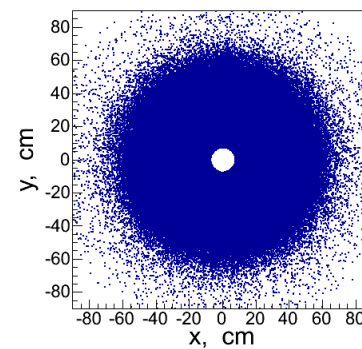
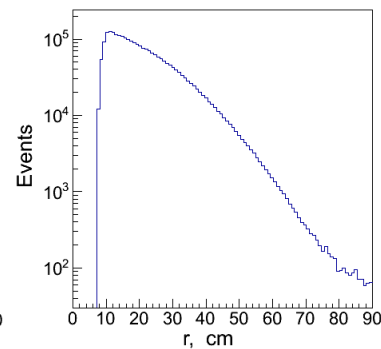
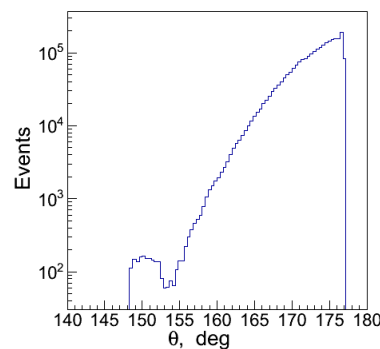
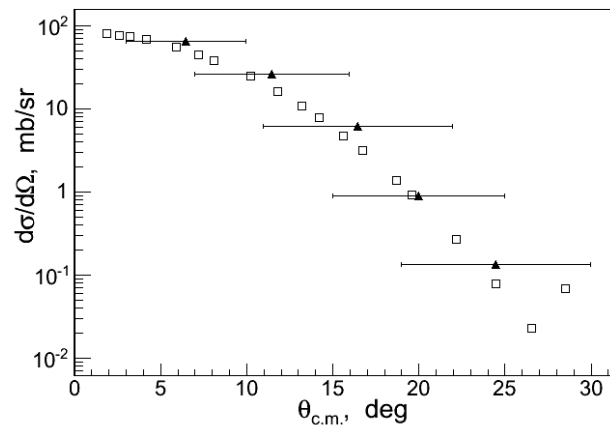
The simulation of the dd -elastic scattering by the Pluto generators

Events dependence from angle scattering and from distance from beam axis

$$\sqrt{s} = 4.22 \text{ GeV}, N_{\text{total}} = 3 \cdot 10^6 \text{ events}$$



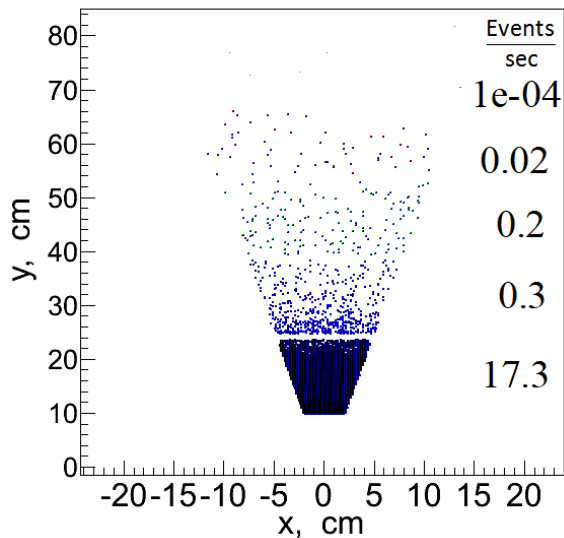
Distribution of the normalized events from generator



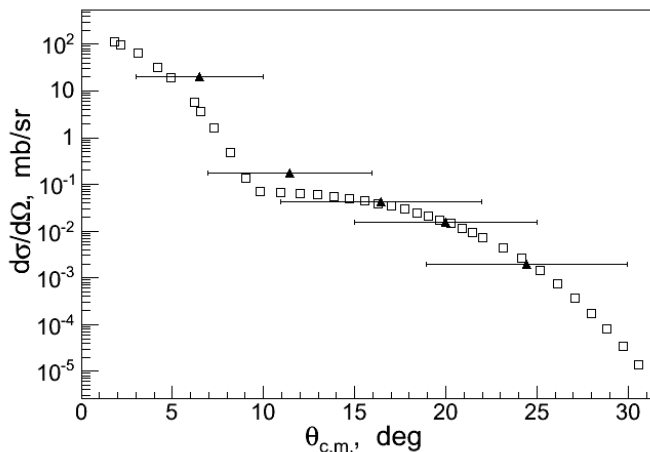
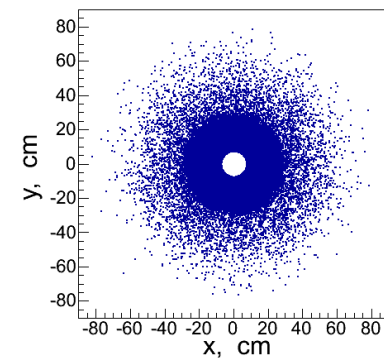
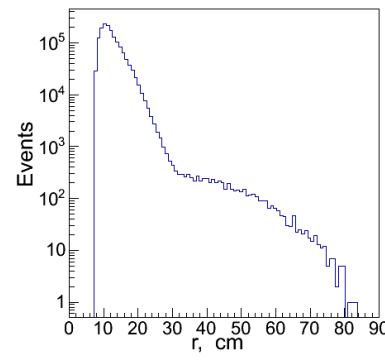
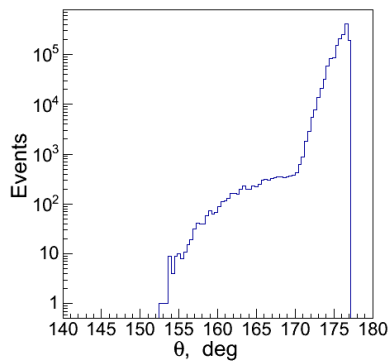
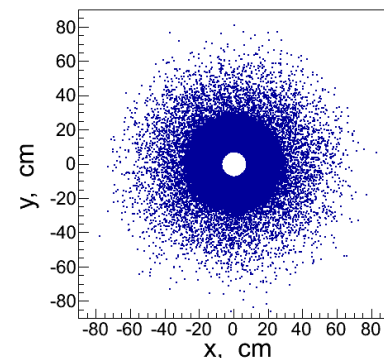
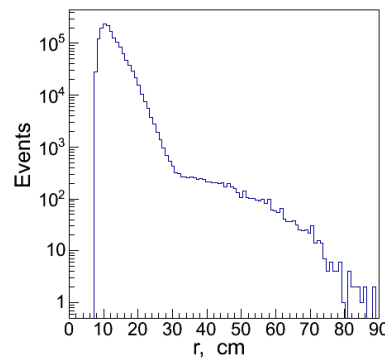
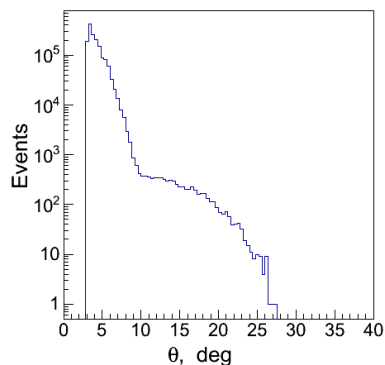
The simulation of the dd -elastic scattering by the Pluto generators

Events dependence from angle scattering and from distance from beam axis

$\sqrt{s} = 6.4 \text{ GeV}$, $N_{\text{total}} = 3 \cdot 10^6 \text{ events}$



Distribution of the normalized events from generator



Conclusion

- The first stage of the simulation of the pp - elastic scattering at energies $\sqrt{s} < 27$ GeV has been performed by the FT and Py8 generator.
- The events dependences for each sectors of the BBC have been obtained for pp -elastic scattering.
- The normalized data of the simulation were compared with the experimental data.
- The simulation of the dd - elastic scattering at energies $\sqrt{s} < 6.4$ GeV has been performed by the Pluto generator.