

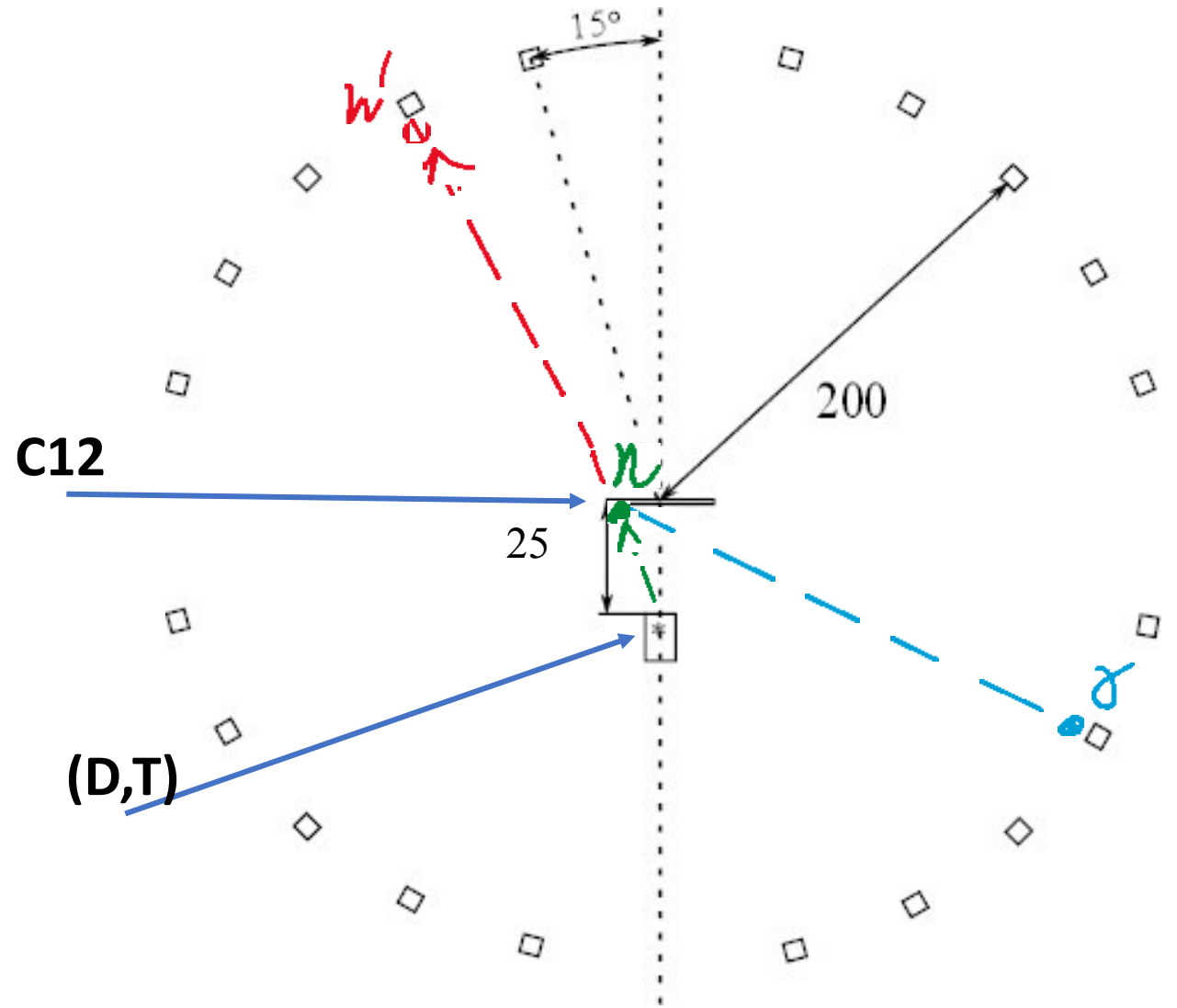


Angular correlation (n', γ) in reaction of neutron's inelastic scattering on ^{12}C

P.G. Filonchik, D.N. Grozdanov, N.A. Fedorov, Y.N. Kopatch, A.L. Barabanov

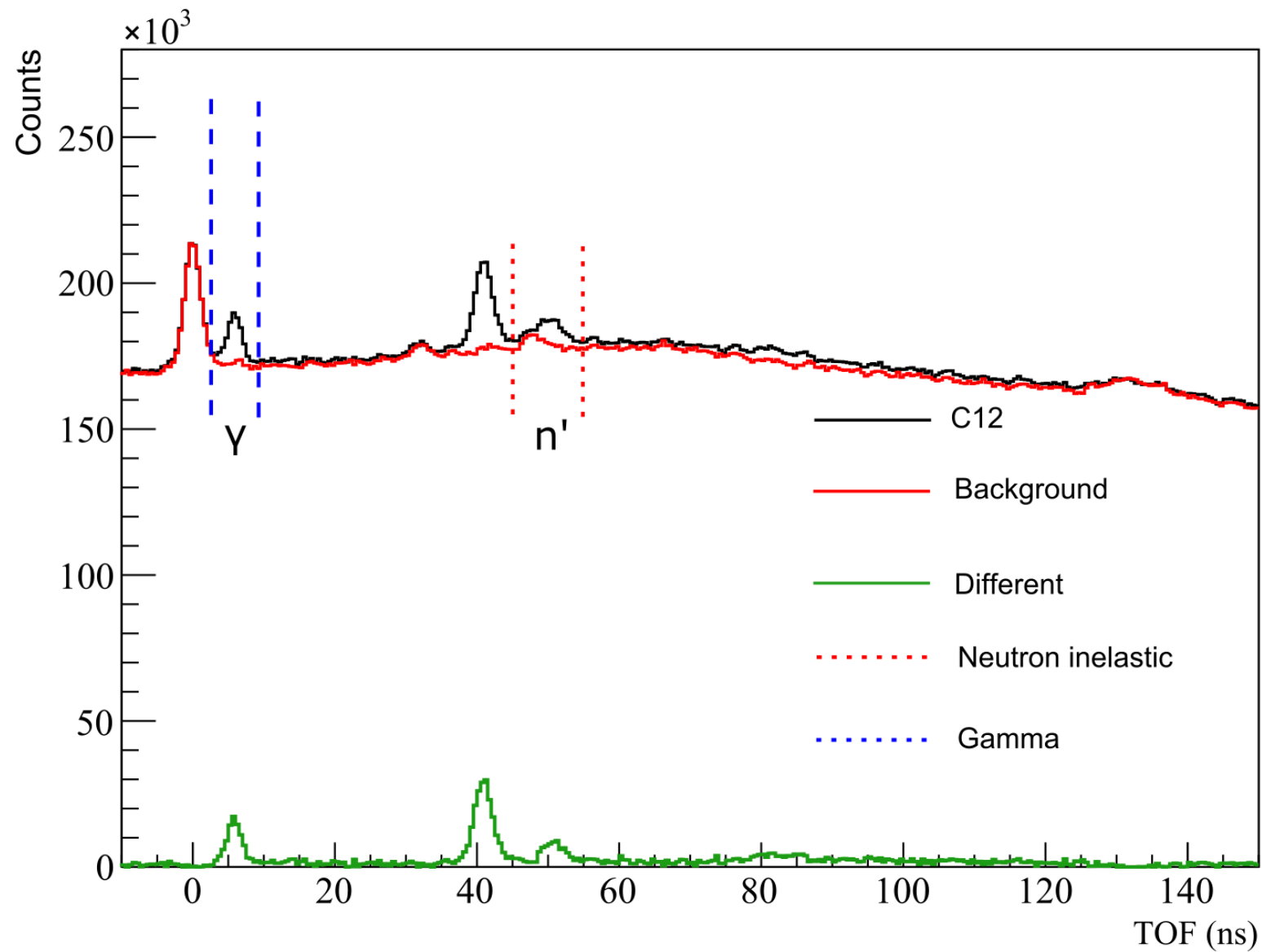
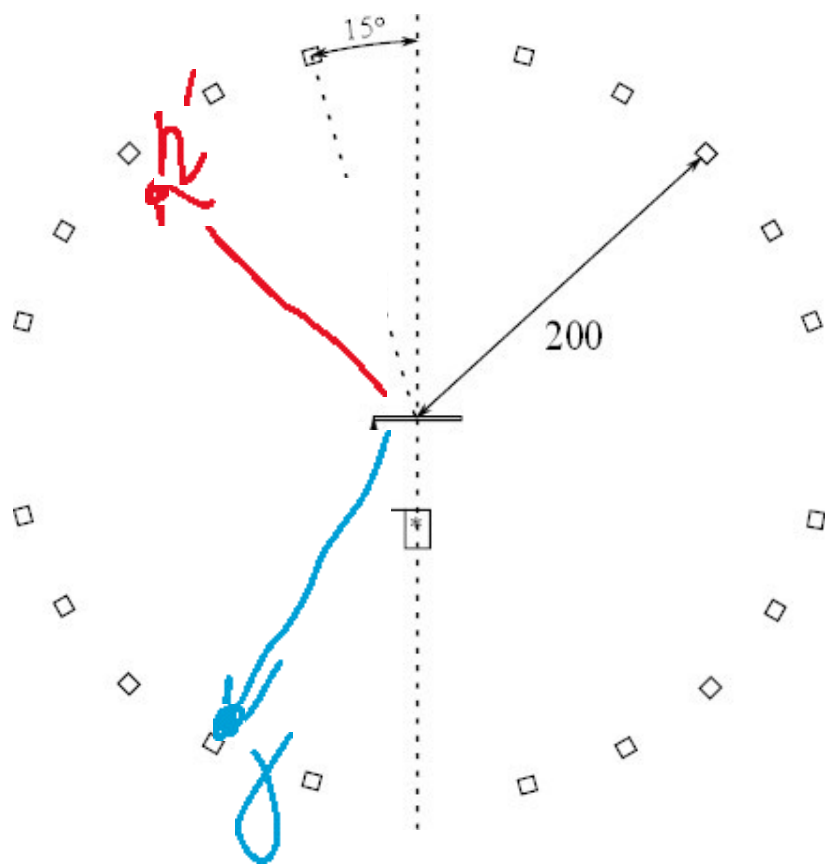
TANGRA

TAged Neutrons and Gamma RAYs



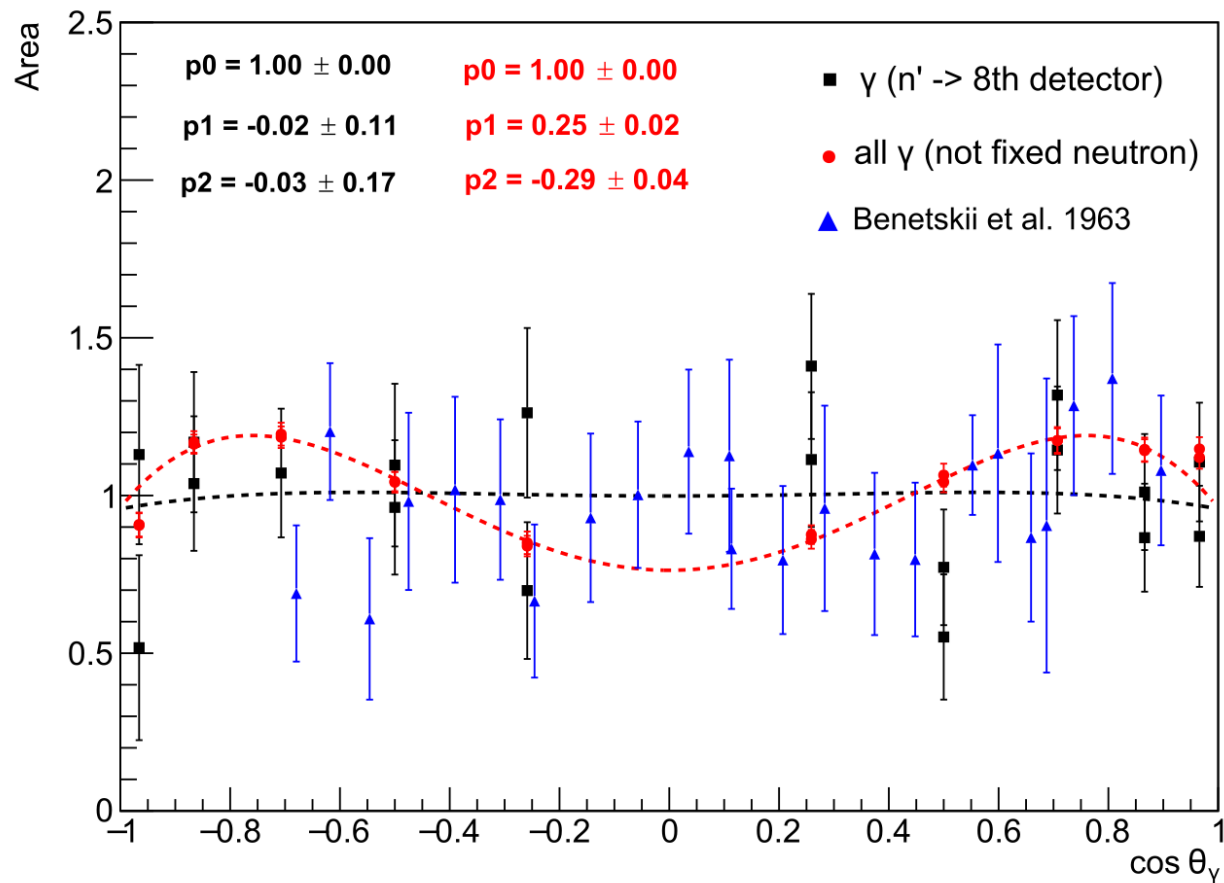
20 detectors around the carbon target

Time of flight

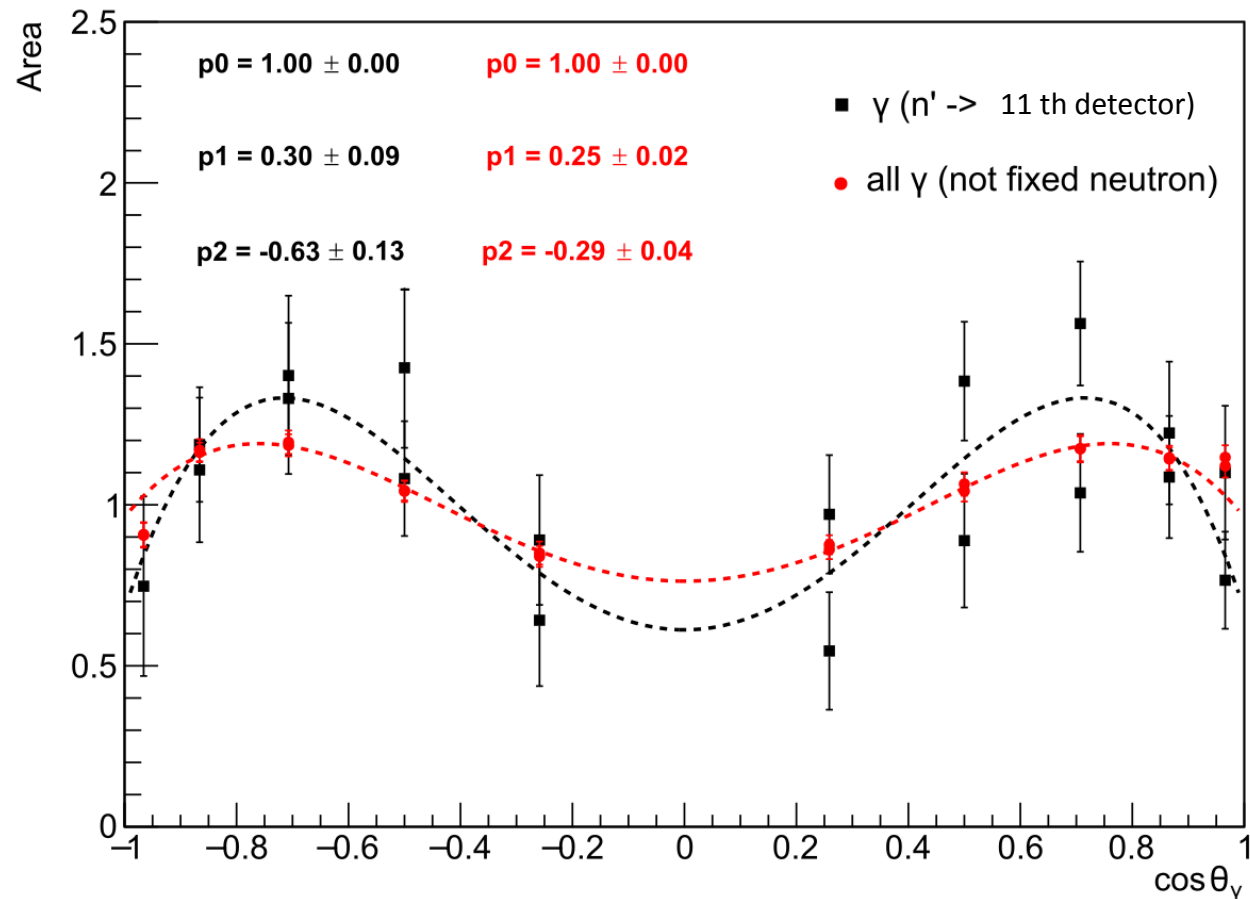


(n', γ) -correlation

det 8, $\theta_{n'} = 135^\circ$



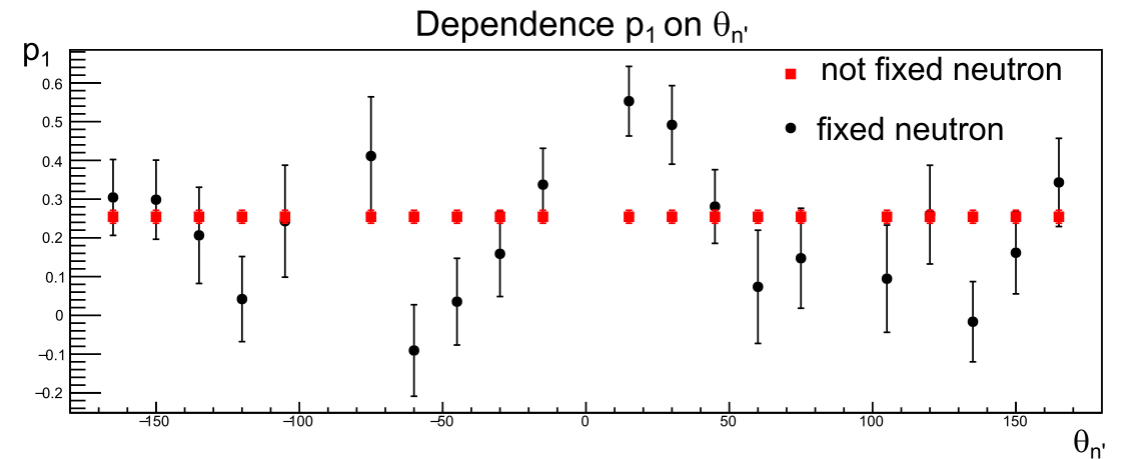
det 11, $\theta_{n'} = 195^\circ$



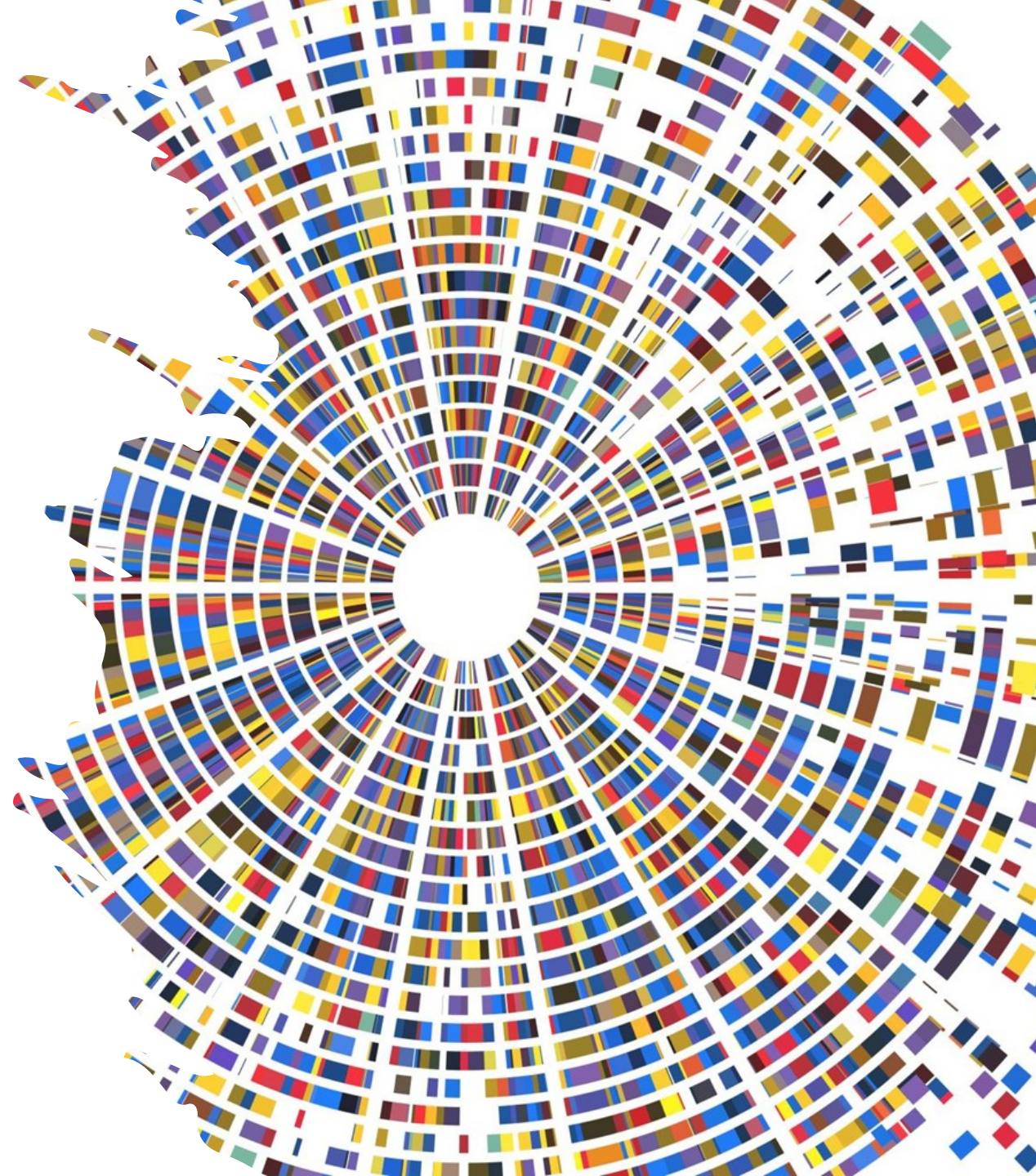
$$W(\theta_\gamma, \theta_{n'} = \text{fix}) = p_0(\theta_{n'}) + p_1(\theta_{n'}) \cdot \cos^2 \theta_\gamma + p_2(\theta_{n'}) \cdot \cos^4 \theta_\gamma$$

Conclusions

1. The experiment on angular correlations was carried out.
2. The method of measurement of (n,gamma)-correlations was developed.
3. Received statistics are not enough.
4. New experiment with compacter geometry is planned.



Thank you for
your attention!



Literature

B.A. Benetskii, I.M. Frank. **Angular correlation between gamma rays and 14-MeV neutrons scattered inelastically by carbon.** Soviet Physics JETP, vol. 17, n. 2 (1963) p. 309

E. Sheldon. Rev. Mod. Phys. 1963. V.35 P. 795.

A.B. Clegg and G.R. Satchler. Nucl. Phys. 1961. V. 27. P. 431.

N.A. Fedorov. **Studying of 14.1 MeV neutrons scattering on light nuclei. Master thesis.** MSU, Moscow, 2017.

J. Zamudio, L. Romero, R. Morales. Nuclear Physics. 1967. V. A96. P. 449.