

SUMMARY OF THE USSR GROUND BASED OBSERVATIONS OF THE
3 K-ANISOTROPY

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Complete review of all (about 80) measurements made in US, USSR, GB, GFR, Australia may be found in Parijskij and Korolkov (1986). Here we present very short summary of the astrophysical motivations and main results obtained in USSR during the last 20 years through ground based observations of 3 K anisotropy.

In 1968 we have tried to check J.Silk version of galaxies formation which predicts the anisotropy on the galactic scale (0.5). We had 1'-resolution with 130m-Pulkovo Radio telescope, 150 K cooled PARAMP and 1 Ghz bandwidth at 4 cm. Our upper limit was much less than 1 mK on the galactic scale that is smaller than predicted by this simple theory.

In 1972-1975 we have tried to check new version of galaxies formation through protocluster stage, visible at recombination epoch on the few arcmin scale. Best results were obtained with RATAN-600 again with 4 cm receiver of the same type. All computer models for Universe filled by visible matter only predicted anisotropy greater than 10^{-4} but we were below this limit.

New hope appeared after laboratory discovery in Moscow University of the 30 ev mass of neutrinos. New elegant model of galaxies formation was computed with prediction 3×10^{-5} for 3 K-anisotropy on the protocluster scale.

In 1980 we have used 35 K-system temperature cooled receiver at 7.6 cm at RATAN-600 simultaneously with other 4 wavelength from 1.3 cm to 30 cm. Nothing was found at the level close to 10^{-5} , that is a little below predicted by new theory.

In 1987 we (with dr.Starobinsky) have tried to trace the angular spectrum of the fluctuations visible at the RATAN-600 output in the $0.5-5^\circ$ range. Only upper limit was found at the level comparable with 10^{-5} . This result gives indirect indication on the uniformly distributed "unseen" matter; the gravitating mass seems is distributed much more uniformly than visible matter. "Decay particle" scenarium predict just

this picture.

Now we are preparing to the next generation experiments treing to go down below 10^{-5} in T/T.

REFERENCES

Farijskij, Y.N., Korolkov, D.V. 1986, *Astronnysics and Space Physics Reviews*, 2, 39-179