ABOUT A DOUBLE INVERSION SIGN OF POLARIZATION MICROWAVE EMISSION FROM FLARE-PRODUCTIVE ACTIVE REGION

V. Kotelnikov[1], *V. Bogod*[1], *L. Yasnov*[2]

[1]Saint-Petersburg branch of Special Astrophysical Observatory of RAS
Pulkovskoe Shosse, 65, Saint-Petersburg, Russia
[2]Saint-Petersburg State University
198904 Saint-Petersburg, St. Peterhof, Ul'anovskaya street 1
vasian.spbu@mail.ru

Polarization inversions have been detected in some microwave sources by Piddington et al. (1951) and by Peterova at al. (1974). Tokhchukova et al. (2002) have shown that a more complex phenomenon is observed in the flare-active regions: before a powerful flare the sign of circular polarization changed twice within a narrow frequency range. Here we discuss observations of flare-productive active regions. These observations were carried out with the RATAN-600 radio telescope in a broad radio range for a period from 2000 to 2004. The double inversion has been observed in several events before powerful proton flares. We propose two alternative models for explanation of this phenomenon. The first model is the existence of the magnetic "hole" in active the region and the second model is the propagation of radio waves through a layer with zero magnetic field.

References

Peterova N.G., Akhmedov S.B.: *Soviet Astronomy*, 1974, **17**, 168.
Piddington J. H., Minnnett H. C.: *Austral. J. Sci. Res.*, 1951 **A4**, 131.
Tokhchukova S. Bogod V.: *Solar Physics.*, 2002, **212**, 99.