

# ”The long-term oscillations in sunspots and related inter-sunspot sources in microwave emission”

*Thursday, 8 October 2015 14:30 (30)*

Irina A. Bakunina (1), Vladimir E. Abramov-Maximov (2), Alexander A. Solov'ev (2) (1) National Research University Higher School of Economics, 25/12 B. Pecherskaja ul., Nizhny Novgorod 603155, Russia rinbak@mail.ru (2) Central Astronomical Observatory at Pulkovo, Russian Academy of Sciences, Pulkovskoe chaussee 65/1, St Petersburg 196140, Russia beam@gao.spb.ru

This work presents the microwave long-term oscillations with periods of a few tens of minutes obtained from Nobeyama radioheliograph (NoRH) at frequency 17 GHz. In number of active regions the fluctuations of radio emission of different types of sources (spots, compact and extended intersunspot sources (ISS)) were compared with the fluctuations in magnetic fields of sunspots. More significant correlation between the variations in magnetic field and radio emission was observed for sunspots and compact ISS. We adopt the cross-correlation analysis, wavelet analysis, and statistical tests to deduce the results. The model of the shallow sunspot's eigen oscillations is discussed for explanation of the origin of quasi-periodic oscillations in sunspots and ISS.

## Presentation type

Poster

**Primary author(s) :** Dr. BAKUNINA, Irina (National Research University Higher School of Economics)

**Co-author(s) :** Dr. SOLOV'EV, Alexandr (Central Astronomical Observatory at Pulkovo, Russian Academy of Sciences); Dr. ABRAMOV-MAXIMOV, Vladimir (Central Astronomical Observatory at Pulkovo, Russian Academy of Sciences)

**Presenter(s) :** Dr. BAKUNINA, Irina (National Research University Higher School of Economics)

**Session Classification :** Poster session III

**Track Classification :** Cosmic rays