

THE UKRAINIAN RADIO INTERFEROMETER SYSTEM URAN FOR STUDIES IN DECAMETRIC WAVELENGTHS BAND

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Abstract

As is known, the amount of experimental data available nowadays on the structure of extended components of extragalactic radio sources which radiate mostly at very low frequencies, is quite insufficient to study main properties of these components, the evolution of radio sources and their interaction with the intergalactic medium.

To fill this gap is the main astrophysical aim of the new Ukrainian, low-frequency VLBI system URAN. This system has been developed by scientists of the Institute of Radio Astronomy, the Ukrainian Academy of Sciences, in Kharkov, and is now on construction stage. The system URAN will consist of five low-frequency radio telescopes with baselines from 40 up to 1000 km. Four of them located at new Kharkov, Odessa, Lvov are in regular operation now, and the construction of the fifth instrument will be completed by the end of this year.

The system of four radio telescopes has an angular resolution of about 1 arcsecond and its sensitivity is about 10 Jy at 25 MHz.

The low-frequency structures of several radio sources have already been studied with the URAN-system. So, it has been shown that bright compact quasars studied previously at high frequencies possess also extended components with low surface brightness and steep spectra which become most prominent at very low frequencies.

Apart from the studies of extragalactic sources, the investigations with the URAN-system also provide new experimental data on the solar wind parameters at large elongation angles. These data have allowed to obtain new knowledge on the structure of interplanetary inhomogeneities.

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