

**LOW-FREQUENCY RADIO RECOMBINATION LINES:
OBSERVATIONS AND DATA PROCESSING**

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Investigations of radio recombination lines at extremely low frequencies provide new opportunities for the interstellar medium studying. However, the low intensities of the lines and high level of interferences makes such investigations very difficult and impose high requirements to both the equipment and observational methods, and to the data processing procedure. In this report observations of radio recombination lines, which are carried out with radio telescope UTR-2 using a 4096-channel autocorelometer and 16-bit digital spectral analyzer are described. The correct processing and interpretation of observational results provide new information about the basic parameters of the interstellar medium – electron temperature, density, element abundances, distribution of ionized gas. Radio recombination lines provide new opportunities non only for astrophysics but also for physical science as a whole.