

## **STORAGE, STRUCTURE AND REDUCTION OF THE SOLAR DATA OBTAINED BY THE CORONAS-I SPACE EXPERIMENT**

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An experiment for the investigation of solar X-ray radiation (IRIS) was carried out in the Nuclear Space Physics Laboratory of the A. F. Ioffe Institute of Physics and Technology. The scientific stages of the experiment are: (1) elaboration and creation of a spectrometer device for solar soft and hard X-ray flux measurements; (2) registration of solar X-ray bursts on board the CORONAS-I orbital space station; (3) creation of the Solar Flare Data Base and the development of software for data reduction and physical modeling.

These stages are interdependent. Therefore the form of storage, structure and reduction methods of the experimental data are determined by the characteristics of the IRIS spectrometer, by the parameters of the CORONAS-I telemetry system and by the scientific research.

The main physical characteristics of the IRIS spectrometer are as follows: energy ranges 2–15 keV and 15–200 keV; dynamic range 10 000; patrol mode time resolution 2.5 s for six energy channels in both X-ray ranges; burst mode time resolution 1.0 s for 32 energy channels in both X-ray ranges and 0.01 s for four energy channels in hard X-ray range only.

The reduction of experimental data is performed in two stages. The first stage includes the search for, and selection of, solar X-ray events using a special graphic dialogue computer system. This

procedure results in the creation of the Solar Flare Data Base. This database contains the times of solar events, the peak fluxes of soft and hard X-ray radiation, the optical importance, etc. for comparison with the same events in other energy ranges.

In the second stage, we study the phenomena of X-ray precursors, the time and energy spectra and the periodicity of flares according to different models.

The results obtained are used to produce a database that allows a quick search for any event.