digital x-ray spectrograph with cauchois focusing

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The prototype pulsed X-ray spectrograph with Cauchois-scheme focusing based on a CCD recorder is designed for recording X-ray spectra of high-temperature plasma in the spectral range from 5 to 40 keV. Prototype digital X-ray spectrographs with different focusing principles based on cylindrical and concave spherical crystals intended for recording line X-ray spectra are not effective in the spectral range above 10 keV.

The use of focusing in Cauchois scheme allows expanding the recording range and the application of noiseproof cooled X-ray CCD-matrix makes it possible to ensure rapid measurements and enhance sensitivity as compared with recording with the help of films.

The report presents the results of computational investigations of spectrograph characteristics and experimental investigations using the prototype spectrograph on the Iskra-5 set-

up at RFNC VNIIEF.