Bragg Soft X-rays Spectrometers: Our future missions

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After years of intense studies, the basic physical processes of energy release in the plasma of solar corona are still not well known. The most promising tool allowing the study of physical conditions in the energetic coronal sources is spectroscopy. In the multi-million degree solar corona, the atoms are highly ionized, up to the helium- and/or hydrogen-like ionization stages. Hot plasma contribute to emission spectra in the range between 0.1 and 50 nm, i.e. the soft X-ray range. Observed line profiles depends on local plasma conditions prevailing in active regions and flares (T in the range between 1 and 50 MK). Spectral information completed by the polarimetry and Dopplerometry constitute a powerful tool to diagnose the properties of the hot plasma in the atmosphere of our star.

In this context, I will present two space instruments (ChemiX and SOLPEX) currently under construction at the Space Research Centre of Polish Academy of Sciences designed to observe in detail the solar soft X-ray spectra and perform unique polarimetry measurements.