



## **Stellar wind induced soft X-ray emission from close-in exoplanets**

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We estimate the X-ray emission from close-in exoplanets. We show that the Solar/Stellar Wind Charge Exchange Mechanism (SWCX) which produces soft X-ray radiation is very effective for hot Jupiters. In this mechanism, X-ray photons are produced by charge exchange between heavy ions in the solar wind and the atmospheric neutral particles. This mechanism is known to generate X-ray emission of comets in the Solar system. It has also been shown to operate in the heliosphere, in the terrestrial magnetosheath, and on Mars, Venus and Moon. Since the number of emitted photons is proportional to the solar wind mass flux, this mechanism is not effective for the Solar system giants. We present a simple estimate of the X-ray emission intensity that can be produced by close-in extrasolar Hot Jupiters due to charge exchange with the heavy ions of the stellar wind. Using the example of HD 209458b, we show that this mechanism alone can be responsible for an X-ray emission of  $\approx 10^{22}$  erg s<sup>-1</sup>, which is  $10^6$  times stronger than the emission from the Jovian aurora. We discuss the possibility to observe the predicted soft X-ray flux of hot Jupiters and show that despite high emission intensities they are unobservable with current facilities.