

Structure of Magnetic Funnel Elements in the Compact Star

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It is not clear until now in which form the material accretes to the stellar surface through the magnetosphere. Because the X-rays produced near the stellar seem to pass this infalling material in the magnetosphere and to be absorbed, it is very important to know the structure of this material. Rosen et al. (1988) proposed a tall, thin column in the magnetosphere. The large-scale flow along the field line into the stellar surface is postulated to act as an accretion curtain, modulating X-rays by varying the photoelectric absorption. Similar to this model, Kim (1992) and Kim & Beuermann (1994a,b) have developed a phenomenological model of X-rays and optical spectrum. We consider the structure of the absorbing material infalling to the stellar surface along the magnetic field, which can explain the observed X-ray photoabsorption and the optical spectrum reprocessed in the magnetic funnel elements. A filling factor of the funnel elements is introduced to this purpose and the variation of the X-rays with varying the filling factor is discussed in more detail. In order to explain the optical spectrum and optical line emission we used the optical thin as well as the optical thick funnel elements. Therefore we modified the accretion curtain model by assuming that the material in the magnetic funnel elements consists of many optical thick blobs. It is shown that this modified model leads to the natural explanation of the observed properties of radiations(X-ray and optical radiations)

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