Revista Mexicana de Astronomía y Astrofísica
Universidad Nacional Autónoma de México
rmaa@astroscu.unam.mx
ISSN (Versión impresa): 0185-1101
MÉXICO

2004
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Revista Mexicana de Astronomía y Astrofísica, número 020
Universidad Nacional Autónoma de México
Distrito Federal, México

RevMexAA (Serie de Conferencias), **20**, 235–235 (2004)

THE NEW VIEW ON THE LONG-THERM FLICKERING IN T CrB

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The big scatter of data on the light curve of T CRB is identified with the flickering activity of the system. The data performed during April 1996 have a falling trend and they can be a part of a downward branch of a long-term and energetically powerful flare. Estimated energy 2 10^{35} J and the duration of this event were compared with the theoretical assumptions based on three typical physical scenarios, which can be the source of flickering. The dissipation of magnetic loops and the existence of the turbulent eddies are energetically deficient, but these scenarios are real in the case of less powerfull flares. The real explanation could be the instability of the secondary and variable mass transfer rate through the Lagrangian point, therefore through whole disc.

Our own material was performed at the observatory at Skalnate pleso with 60 cm Cassegrain telescope with single channel photoelectric photometer using U, B, V filters (Hric et al. 1998).

The estimate of energy ($\sim 10^{35}$ J) of one probable long lasting flare was compared with the theoretical models of few flickering scenarios. We used the same algorithm as Bruch (1992), but in the case of turbulencees we did not used constant diameter of turbulent eddies. In such a solution we obtained strong flares but with small duration and vice versa. We assumed the diameter of turbulent structures to be the high scale of the disc, therefore we obtained higher energies and durations of events (Fig. 1).

Another estimated and compared parameter was the time scale for the studied physical scenarios. We were searching for very long events (hours to days).

It is very difficult to work with energies because of more reasons. We do not know exactly what the continuum is, hence we can not indentify precisely the start, the end and the amplitude of a flare. Our calculated energy is only in the observed interval UBV. Most of the radiation can be emitted in other wavelengts. The inner part of the disc is radiating in the UV and the boundary layer in the X-ray. The spectral distribution of emited energy is a function of the distance from the central body, therefore we can not simply compare observationaly estimated and theoreticaly calculated energy. The only one reliable parameter is the time scale. In this case the long-term brightness fluctuations can be identified as dissipation of magnetic loops, turbulencees or variations in the mass transfer rate through the disc. If we take into consideration our estimated energy, the first two scenarios are deficient.

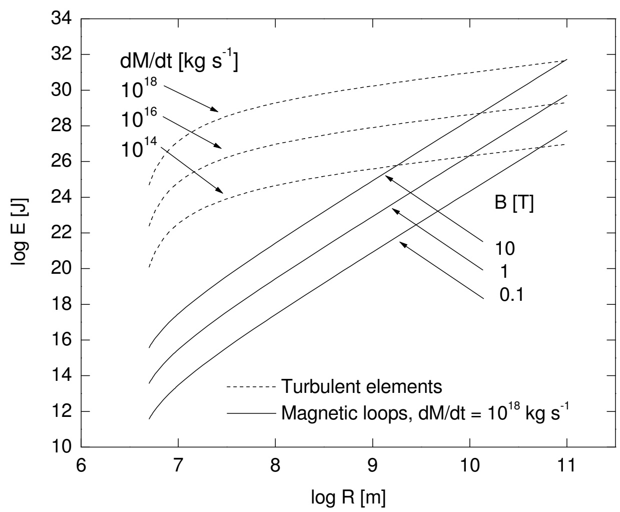

Fig. 1. Energy of two physical scenarios as a function of distance from the white dwarf, mass transfer rate and for the magnetic loops as a function of magnetic flux density. Both are not able to produce energies $\sim 10^{35}$ J.

For indentification of physical mechanism producing flickering we need observation in very wide spectral range. Combination of UBV, far UV and X data is required. The simple study of time scales is not inadequate.

We suggest, that similar algorithms could be used in the study of short-therm variations in active galactic nuclei.

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