

A SHORT-LIVED FLARE OF EV LACERTAE

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Flare events on a time scale of the order of one second were observed on EV Lac by Gershberg and Petrov [1], Zalinian and Tovmassian [2], Tsvetkov, Antov and Tsvetkova [3]. The nature of such phenomena is very mysterious. We hope that monitoring of EV Lac with high time resolution will yield the information about growing and decay times as well as fine structure of the light curve and color one. A short-lived flare of EV Lac was recorded in U and V bands in 1989, September 3 2h 14m 30s UT. The duration of the event was about 150 milliseconds.

The observations were made with the 60-cm telescope at the high altitude Observatory Peak Terskol (3100 m) in the North Caucasus. The high-speed photometer used has two independent synchronous channels with photon counting system. Two operating modes can be used. In the first mode we'll be able to observe two different stars. In the second one a single star will be observed in the two channels by using the beam-splitter. The latter operating mode was used for the photometry of EV Lac in U and V bands simultaneously.

Both search and record of the flare are carried out on-line. Using special routine it is possible to analyse the photon count rate in real time. If some critical level is achieved the control programme begins the recording of the light curve. 8192 samples of photon counts may be stored in the computer memory.

Monitoring of EV Lac was carried out with time resolution of 50 milliseconds. The light curve of the event is shown in Fig. 1 in magnitude scale. The background is subtracted. The bars show rms caused by Poisson statistics of the star and background intensities together. The mean intensities are equal to 0.4 and 33 counts per 50 ms in U and V bands. In the peaks they are equal to 6.2 and 184 respectively.

Some features of the flare are seen:

- a) the growing time of event is shorter than time resolution (50 ms);
- b) the U beginning precedes the V one;
- c) the duration of flare is about 150 ms;
- d) the amplitudes of the flare in U and V bands are equal to 3.0 ± 0.6 and 1.9 ± 0.2 respectively.

The full time of our monitoring was 4.5 hours.

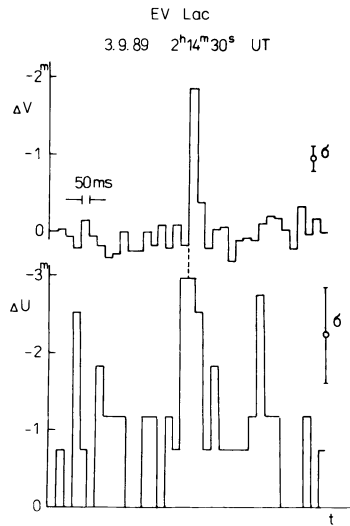


Fig 1

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