

## Short time light variations of Ap-stars

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From 1973 till 1981 sixteen Ap stars were investigated regarding to short time light variations with the twin telescope of the Zentralinstitut für Astrophysik stationed at the observatory Shemahka of the Academy of Science of Aserbaidshan. Only five of these stars show significant variations with characteristical times in the region of 0.5 to 5 hours and amplitudes of about 0.01 mag. We will present here a short discussion of these five stars.

### HD 173650

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This object was observed 1979 and 1981. The frequency analysis of measurements from 1979 clearly show two periods of  $P_1=0.06726$  days ( $A_1=0.0034$  mag) and  $P_2=0.06848$  days ( $A_2=0.0032$  mag). The measurements from 1981 could not confirm these results. There are two possibilities for an explanation. Either the measurements from 1981 are placed in an unfavourable region of the beat period or the variations are not always present.

### HD 184905

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BRODSKAJA(1978) found variations with a period of about 70 minutes and an amplitude of 0.02 mag. PANOV(1981) observed one night only and found a cycle length of 25 to 30 minutes with an amplitude of 0.01 mag. We received from this star 32 measurement series which are longer than one hour. The frequency analysis as well as from the measurement series of different years and from all measurements together showed not any reference of periodical variations in the region of 1 to 4 hours. We found different cycle lengths from 70 to 188 minutes. Clearly variations are rare (about 20% of all nights) and they are not coupled with the rotation phases of this star.

### HD 204411

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RAKOSCH(1963) observed in one night variations in three spectral regions with different courses. We observed five measurement series from 1973 till 1974. All series show variations in cycle length and amplitude. We could not find any periodical variation.

## HD 219749

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 This star was observed in 1977, 1979 and 1981 and we received 29 measurement series. We clearly found variations in amplitude and cycle length in many cases which points to a multiperiodical character. We found for:

1977 P1=0.09028 days (A1=0.0040 mag), P2=0.10694 days (A2=0.0028 mag); 1979 P1=0.08920 days (A1=0.0026 mag), P2=0.10601 days (A2=0.0034 mag), P3=0.11009 days (A3=0.0050 mag); 1981 P1=0.09022 days (A1=0.0054 mag), P2=0.10960 days (A2=0.0028 mag).

The measurements for all three years show nearly two identical pairs of periods. We found a third period for the observations of 1979 with dominating character. It is possible that the ratio  $P2/P3 \approx 0.975$  points to a nonradial pulsation.

## HD 224801

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 RAKOSCH(1963) found in four nights variations with a period of 125 minutes. JARZEBOWSKI(1981) observed in two nights unregularly fluctuations of light.

From 1973 till 1981 we received all together 18 measurement series. In different series we also found cycle lengths with a characteristic time of about 120 minutes. Other series compared to it show a constant course which points to a multiperiodical variation. Only for 1973 we could carry out a frequency analysis. We found for this year P1=0.09325 days (A1=0.0062 mag), P2=0.06737 days (A2=0.0028 mag). With these two periods we found a good fitting for the other measurements. Only the observations from 1979 show a deviation which is greater than the observational error. But this result stands not in opposition to the expectation that the star shows a multiperiodical variation.

We can conclude that short time light variations with amplitudes from about 0.01 mag and characteristic times of hours are real but a rare phenomena for the Ap stars. In a few cases we observed irregular variations. The reality of this effect one must confirm with more observations and higher accuracy. Our assessment agrees with that of WEISS(1983). He observed five Ap stars with low pulsation modes. We found two new Ap stars with these properties by our observations in addition to him. A detailed discussion of our investigations of short time light variations of Ap stars will be published in 'Publikationen des Astrophysikalischen Observatoriums Potsdam' 1985, Bd.32, Heft 5, Nr.112.