Post superhumps maximum on intranight time scales of the AM CVn star CR Boo

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AM CVn stars are short-period binary stars, with a white dwarf accreting helium-rich material from a low-mass donor star. The AM CVn stars can manifest brightness variability, usually in a range of 2-4 magnitude at optical wavelengths. During the outbursts periods, the production of superhumps is very possible to be observed. CR Boo is a double white dwarf binary, member of AM CVn group. CR Boo periodically passes from faint to bright states, with regular or super-outburst activity.

We present observations of intranight brightness variability of CR Boo in BVR bands. The observational data are obtained with the 2m telescope of the Rozhen National Astronomical Observatory. We report appearance of superhumps, with an amplitude from 0.08 to 0.25 mag, when the maximum brightness reaches the magnitude in V band 14.08 and in B band 14.13. The secondary maximum after each superhump is detected, with the same periodicity as the superhumps: $P_{sh} = 24.76 - 24.92$ min. In our results, the post maximums are shifted in time ≈ 7.2 min, with an amplitude of ≈ 0.06 mag and an amplitude difference of 0.035 mag towards the superhumps' maximum. We find a correlation of the post maximums with the accretion processes at the outer side of the disc.