

A New Double Star Observed During Lunar Occultation: S 763A

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Abstract: A lunar occultation observation observed at two separate sites in November 2018 detected a new, previously unknown companion to S 763A (HIP 102685).

Circumstances

On 2018 November 14, a lunar occultation disappearance of S 763A was observed at two separate stations, 208km apart. Both stations used video recording equipment operating at 25 frames/sec, using a 40cm telescope at one site (DH) and a 30cm telescope at the other site (DG).

The waxing moon was 39% illuminated. The star was 20 degrees above the western horizon.

Observation

The light curves that were recorded are shown in Figure 1.

The brighter star was occulted first, leaving the fainter star in view for 1.08 seconds (DH) and 1.2 seconds (DG), before it too was occulted by the moon.

The measured magnitude for the new star is 10.9 ± 0.3 .

The events were seen to occur at the lunar position angle of 74.291 degrees (DH) and 73.213 degrees

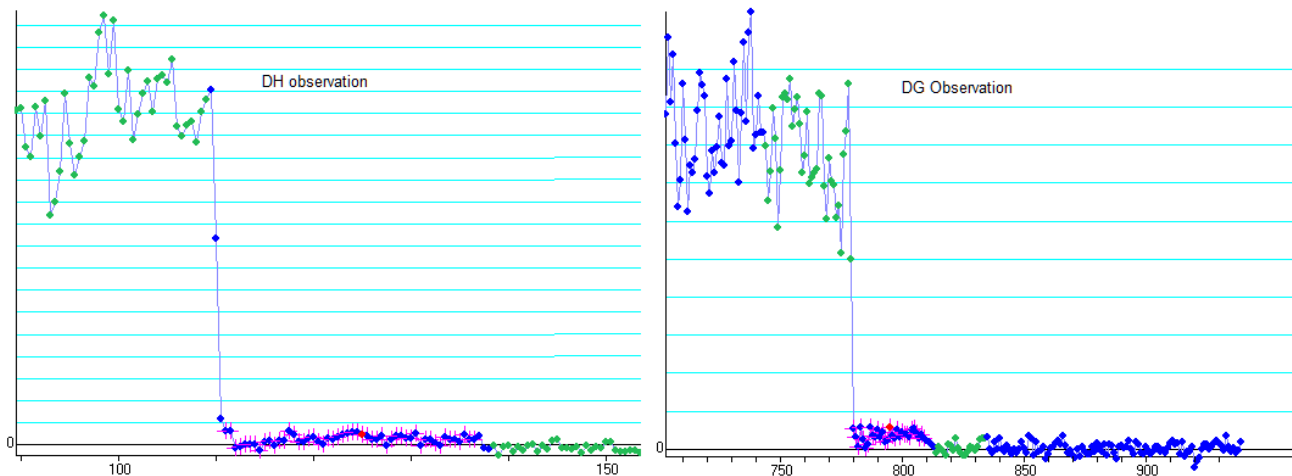


Figure 1. Recorded light curves. Relative brightness on the y-axis, frame number on the x-axis. Dots in green represent sample measures before the occultation when both stars are clear of the lunar limb, and after the occultation. Dot in purple represent measures when only the fainter star was visible.

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(DG), however this is too close to produce a good PA and Separation for the new star.

The apparent radial velocity of the star-moon at those PAs was 0.4650"/s (DH) and 0.4721"/s (DG), so the separation of the new star from S 763A is at least 0.50".

S 763

The lunar occultation historic record showed several video observations of this star and the observers were contacted (including author DG) to see if they might have missed this faint star in previous analysis, but this line of enquiry was not successful.

Star HIP 102685 =HD 198063 =SAO 163895
Coord. (J2000) 20h 48m 25.98, -18° 12' 06.18"
Spectral type K1

Derived double data:

Mag A 7.24 ±0.1 (V)
Mag B 10.9 ±0.3 (V)
Epoch 2018.87
Separation >0.50"
PA at epoch between 13° and 133°

References

Lunar Occultation Archive: VizieR Catalogue number
VI/132A

