

Speckle Interferometry of HU 920 and A 2246

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Abstract Speckle interferometry observations were made of HU 920 (WDS 17201+6206) and A 2246 (WDS 17285+0224) with a 2.1-meter telescope at Kitt Peak National Observatory. The position angles and separations of each were measured and compared to historical observations. The position angle and separation of HU 920 are 316.8° and $0.4''$, respectively. The position angle and separation of A 2246 are 122° and $.39''$, respectively.

Introduction

HU 920 (WDS 17201+6202) and A 2246 (WDS 17285+0224) were selected for observation based on two criteria: the lack of observations within the last twenty years, and the relatively few historical measurements overall. Speckle interferometry observations of these two pairs were made with the 2.1-meter telescope at Kitt Peak in April 2014 as described by Genet et al. (2014). Figure 1 shows the team from the Army and Navy Academy analyzing the data.



Figure 1: Army and Navy Academy Cadets Young Cho (left) and Arthur Chang (right).

Results and Analysis for HU 920

Figure 2 shows an autocorellogram created using the software PlateSolve 3.0 (Rowe and Genet 2015). The current position angle of 316.8° with a separation of $0.4''$ was determined from this figure.

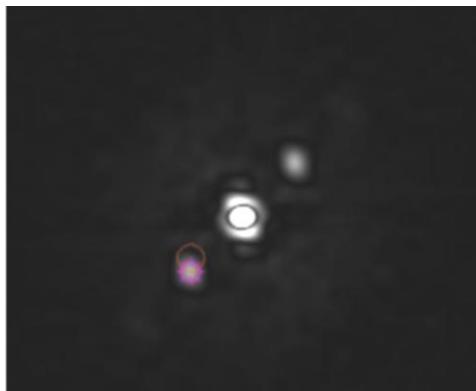


Figure 2: Kitt Peak 2014 autocorellogram of HU 920.

We obtained the observational history of HU 920 from the archives of the Washington Double Star Catalog. Table 1 provides the complete observational history including the results of our 2014 measurement. The present data continues an increasing trend in position angle. The separation is similar to the most recent observations.

HU 920		
EPOCH	Position Angle	Separation
1905	266.4	0.71
1922	267.8	0.62
1974	295.1	0.55
1977	293.7	0.49
1982	312.6	0.48
1984	309.0	0.40
1991	302.4	0.42
1991	304.0	0.45
1993	308.4	0.35
2014	316.8	0.40

Table 1: Historical measurements of HU 920 from the WDS including the Kitt Peak data from 2014.

Results and Analysis for A 2246

The Washington Double Star Catalog shows the magnitudes of the two components of A 2246 to be 10.41 and 10.59 respectively. The primary has a spectral type of G5. Figure 3 shows an autocorellogram created using the software PlateSolve 3.0 (Rowe and Genet 2015). The current position angle of 122° with a separation of $0.39''$ was determined from this figure.

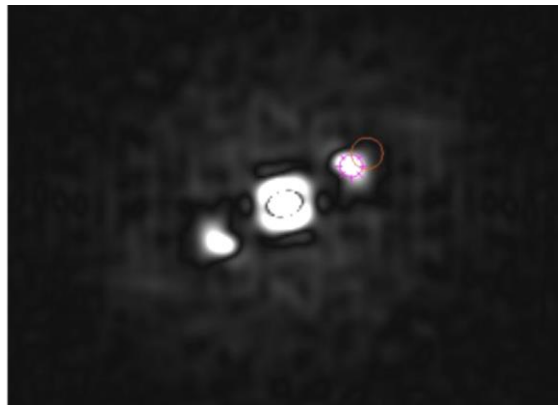


Figure 3: Autocorellogram of A 2246.

We obtained the observational history of A 2246 from the archives of the Washington Double Star Catalog. Table 2 provides the complete observational history including the results of our 2014 measurement. The present data show a similar position angle to recent observations. The separation is shown to continue to decrease throughout its observational history.

A 2246		
EPOCH	Position Angle	Separation
1910	121.6	0.83
1916	121.7	0.76
1918	121.6	0.79
1926	119.5	0.87
1936	118.2	0.73
1940	119.8	0.71
1963	118.6	0.65
1963	119.1	0.58
1974	115.8	0.63
1977	118.4	0.60
1991	117.0	0.60
1994	122.2	0.50
2014	120.38	0.39

Table 2: Historical measurements of A 2246 including the Kitt Peak speckle interferometry results.

Conclusions

The measured position angle of HU 920 continues the generally increasing trend in position angle since the first observation in 1905. The measured separation of HU 920 is near the mean of recent observations. The measured position angle of A 2246 is similar to the mean of recent observations. The measured separation of A 2246 continues a decreasing trend which may have begun in 1926. These values may be used by future researchers to calculate potential orbits or determine that the trend is linear rather than elliptical, indicating the stars are optical rather than binary in nature.

Acknowledgements

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References

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