

New Suspected Common Proper Motion Pairs

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Abstract: This article describes the identification of 11 new suspected pairs and one new suspected trio of stars with suspected common proper motion. We provide position measurements and proper motion values using data from UCAC4 catalog (Zacharias, et al. 2013).

Introduction

During the analysis of CCD images taken for the purpose of photometry of variable light sources and of astrometry of minor planets of our solar system, we have identified, serendipitously, 11 new suspected pairs and 1 new suspected trio of common proper motion stars not previously reported by observers and not included in the last edition of the Washington Visual Double Star Catalog (Mason, et al. 2001).

Analysis

In order to search for new pairs of common proper motion stars we analyzed images collected during 2012 with the instruments of the “Stazione Astronomica Betelgeuse (SAB)” located in Magnago, Italy (a Schmidt-Cassegrain 0.25m-f/10.0 telescope equipped with a KAF261E CCD camera). For each suspected pair identified, we checked the UCAC4 catalog in order to establish a similarity in the proper motion of the components.

In Table 1, for each pair of stars with suspected common proper motion, we report the provisional designation, epoch, position (R.A. and Dec.), and unfiltered magnitude as measured with the software Astrometrica (Raab, 2011); proper motion in right ascension (pm RA) and proper motion in declination (pm DE) for components as derived from the UCAC4 catalog; sepa-

ration and position angle derived as described by Buchheim (2008).

Table 2 shows the images of fields containing the suspected common proper motion pairs; the orientation is north up and east left.

References

- Buchheim R.K., 2008, “CCD Double-Star Measurements at Altimira Observatory in 2007”, *JDSO*, **4**, 27.
- Mason B.D., et al., 2001, “The Washington Visual Double Star Catalog (WDS), Version 2010-07-03”, *A.J.*, **122**, 3466.
- Raab H., 2011, Astrometrica (Version 4.6.6.391), <http://www.astrometrica.at>.
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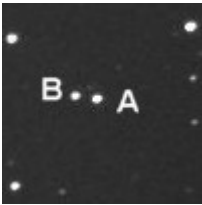
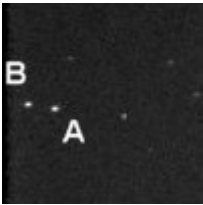
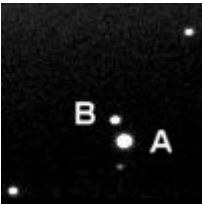
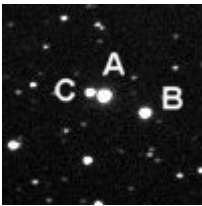
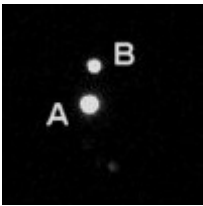
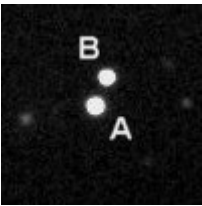
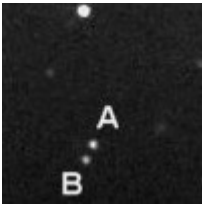
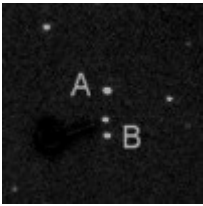
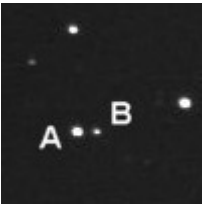

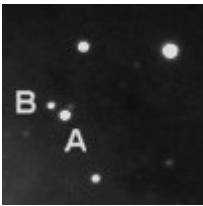
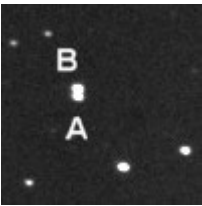
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Table 1: Analysis Results

Name	Epoch	R.A.			Decl.			Mag.	UCAC4 pmRA mas/yr	UCAC4 pmDE mas/yr	Sep (ρ) "	P.A. (θ) °
		h	m	s	°	'	"					
MMA031 A	2012.03	5	5	27.6	25	46	58.3	13.2	-4.0	5.0	17.32	277.96
MMA031 B		5	5	26.4	25	47	0.7	13.7	-9.0	7.0		
MMA032 A	2012.04	1	19	15.0	9	15	4.5	16	-5.0	-27.0	21.62	279.58
MMA032 B		1	19	13.6	9	15	8.1	16.1	-12.0	-30.0		
MMA033 A	2012.04	2	54	59.6	-0	29	28.3	11.7	14.0	-5.0	18.22	202.76
MMA033 B		2	54	59.1	-0	29	11.5	14.3	9.0	-4.0		
MMA034 A	2012.04	22	55	42.1	51	23	50.0	10.8	-7.0	-9.0	35.29	113.02
MMA034 B		22	55	45.5	51	23	36.2	11.5	-8.0	-6.0		
MMA034 A	2012.04	22	55	42.1	51	23	50.0	10.8	-7.0	-9.0	11.62	282.93
MMA034 C		22	55	40.8	51	23	52.6	12.5	-10.0	-6.0		
MMA035 A	2012.23	15	41	35.1	53	50	33.4	9.7	21.0	-21.0	30.87	7.58
MMA035 B		15	41	35.5	53	51	4.0	11.7	20.0	-19.0		
MMA036 A	2012.23	13	57	43.5	22	50	56.9	10.7	-25.0	-7.0	24.56	21.81
MMA036 B		13	57	44.1	22	51	19.7	11.3	-24.0	-7.0		
MMA037 A	2012.36	9	12	42.6	64	41	46.3	15.5	-10.0	-5.0	13.44	155.18
MMA037 B		9	12	43.5	64	41	34.1	15.9	-6.0	-10.0		
MMA038 A	2012.51	17	47	57.6	52	23	57.2	14.7	-3.0	-8.0	35.70	180.00
MMA038 B		17	47	57.6	52	23	21.5	15.4	-3.0	-14.0		
MMA039 A	2012.55	17	8	1.6	13	21	49.2	13.5	-8.0	18.0	15.33	271.50
MMA039 B		17	8	0.5	13	21	49.6	15.3	-17.0	22.0		
MMA040 A	2012.70	23	27	39.9	8	50	37.0	14.9	20.0	3.0	15.43	267.40
MMA040 B		23	27	38.9	8	50	36.3	16.3	22.0	4.0		
MMA041 A	2012.71	0	42	40.9	41	22	16.1	12.9	12.0	1.0	13.51	54.74
MMA041 B		0	42	41.9	41	22	23.9	14.4	14.0	-1.0		
MMA042 A	2012.73	23	10	46.9	30	38	25.3	12.5	-20.0	-14.0	5.80	358.73
MMA042 B		23	10	46.9	30	38	31.1	12.6	-18.0	-10.0		

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Table 2: Identification Charts

		
<p>MMA031</p>	<p>MMA032</p>	<p>MMA033</p>
		
<p>MMA034</p>	<p>MMA035</p>	<p>MMA036</p>
		
<p>MMA037</p>	<p>MMA038</p>	<p>MMA039</p>
		
<p>MMA040</p>	<p>MMA041</p>	<p>MMA042</p>