New Suspected Common Proper Motion Pairs

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Abstract: This article describes the identification of 9 new suspected pairs of stars with common proper motion. I provide position measurements and proper motion values using data from NOMAD and PPMXL catalogs.

Introduction

During the analysis of CCD images taken for the purpose of photometry of variable stars and of astrometry of minor planets of our solar system, I have identified serendipitously 9 new suspected pairs of common proper motion stars not previously reported by observers and not enclosed in the last edition of the Washington Visual Double Star Catalog (Mason, 2001).

Analysis

In order to search for new pairs of common proper motion stars I analyzed images collected during the year 2009 and the first half of 2010 with the instruments of the "*Stazione Astronomica Betelgeuse* (SAB)" located in Magnago, Italy (a Schmidt-Cassegrain 0.20m-F/10.0 Telescope with a KAF-0402ME CCD Camera).

For each suspected pair identified, I checked the NOMAD (Zacharias, 2005) and the PPMXL (Roeeser, 2010) catalogs in order to establish a similarity in the proper motion components (not exceeding 5 mas/yr).

In Table 1, for each pair of stars with suspected common proper motion are reported the position (RA and declination) and magnitude as measured with the software Astrometrica (Raab, 2010), epoch, separation and position angle derived as described by Buchheim (2008), proper motion in right ascension (pm RA) and proper motion in declination (pm Dec) for both components (A and B) as derived from NOMAD and PPMXL, as well as their mean values.

Table 2 shows the images of fields containing the suspected double stars; the orientation of the images is north up and east left.

References

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Table 1: Analysis Results

Identifier	R.A. h m s	Dec. ° ' "	Mag.	Epoch	Rho "	Theta °	NOMAD pm RA mas/yr	NOMAD pm Dec mas/yr	PPMXL pm RA mas/yr	PPMXL pm Dec mas/yr	AVERAGE pm RA mas/yr	AVERAGE pm Dec mas/yr
MMA001 A	5 31 7.05	+ 9 43 9.4	12.4	2009.116	25.66	225.13	2.0	−10.3	−3.8	−7.9	−0.9	−9.1
MMA001 B	5 31 5.82	+ 9 42 51.3	14.1				0.8	−9.7	−0.4	−8.6	0.2	−9.2
MMA002 A	16 30 7.97	+13 26 3.1	12.3	2009.122	15.10	173.34	−4.3	−8.8	−5.2	−11.9	−4.8	−10.4
MMA002 B	16 30 48.09	+13 25 48.1	12.6				0.4	−10.9	−0.1	−16.8	0.2	−13.9
MMA003 A	20 19 39.66	+41 51 10.6	12.2	2009.122	10.63	106.96	−4.9	−8.7	−0.9	−10.8	−2.9	−9.8
MMA003 B	20 19 40.57	+41 51 7.5	14.0				−10.0	−11.1	−5.5	−10.2	−7.8	−10.7
MMA004 A	8 13 28.38	+20 4 3.6	12.3	2009.124	22.51	309.10	−6.9	−13.7	−2.0	−15.4	−4.5	−14.6
MMA004 B	8 13 27.14	+20 4 17.8	14.8				−7.5	−14.1	−5.2	−5.9	−6.4	−10.0
MMA005 A	16 44 33.00	+19 19 39.7	14.4	2009.189	28.34	324.59	−9.3	7.1	−10.5	−1.4	−9.9	2.9
MMA005 B	16 44 31.84	+19 20 2.8	15.0				−7.2	6.4	−12.1	−2.7	−9.7	1.9
MMA006 A	14 9 4.31	− 4 57 35.8	11.9	2010.307	10.72	53.99	−45.7	10.6	−45.8	10.7	−45.8	10.7
MMA006 B	14 9 4.89	− 4 57 29.5	11.9				−47.1	11.5	−46.6	11.7	−46.9	11.6
MMA007 A	14 39 0.43	+30 2 4.3	11.2	2009.291	17.47	156.33	8.0	−2.5	7.2	−2.8	7.6	−2.7
MMA007 B	14 39 0.97	+30 1 48.3	13.7				12.9	−3.4	8.2	−4.7	10.6	−4.1
MMA008 A	19 17 23.46	+37 11 38.5	10.1	2009.729	27.16	298.36	17.1	42.6	17.7	41.4	17.4	42.0
MMA008 B	19 17 21.46	+37 11 51.4	10.9				17.1	42.6	23.3	39.6	20.2	41.1
MMA009 A	5 0 54.08	+49 25 10.9	11.3	2009.786	17.75	47.46	−1.1	−13.5	−1.0	−10.6	−1.1	−12.1
MMA009 B	5 0 55.42	+49 25 22.9	12.3				−4.4	−18.3	−3.9	−5.6	−4.2	−12.0

Table 2: Identification Charts

MMA001	MMA002	MMA003
MMA004	MMA005	MMA006
MMA007	MMA008	MMA009