

# CCD Double Star Measurements - Personal Observations: #Report 1

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**Abstract:** This report submits CCD measurements of 49 pairs, observed in the period November 2011 – January 2012. Possible new pairs, not cataloged in the Washington Double Star Catalog, are suggested.

## Introduction

Between November 2011 and January 2012, I made measurements of 49 double and multiple stars. For these measurements, I used a Schmidt-Cassegrain 235/2350 and a Maksutov-Cassegrain 150/1800 on equatorial mount and the optical train composed of a CCD camera, Imaging Source DMK21AU, and an IR Cut Filter on Flip Mirror.

The method is the same that I reported in a previous papers [1, 2] where I used Reduc by Florent Losse for data reduction,.

Astrometric measurements and references to images and notes, are included in Table 1.

This paper also includes new possible pairs not cataloged in the Washington Double Star Catalog [3].

## New Possible Pairs

Four new possible pairs have been identified. Table 2 shows the proper motions of the new components presented in this paper (The Aladin Sky Atlas; NOMAD1 catalog [4]).

Two new components are described for the systems STF 36 (WDS 00324+0657, new pair AD, Figure 1) and SHJ 48 (WDS 04564-0510, new pair AC, Figure 2).

Also, two new double stars are included, not listed in Washington Double Star Catalog: near 21

Orionis (precise coordinate from the Aladin Sky Atlas: 05:19:06.14 +02:34:27.0, Figure 3) and new pair in system STF 721/GUI 7/BU 557 (precise coordinate from the Aladin Sky Atlas: 05:29:39.01 +03:06:47.5, Figure 4).

In this system, GUI 7AD is a neglected double star and we have only one measurement, dating back to 1904.

## Acknowledgements

This research has made use of the catalogs present in The Aladin Sky Atlas.

I thank Florent Losse for excellent software Reduc.

I thank the Washington Double Star Catalog and the Journal of Double Star Observations for the informations.

## References

1. Micello G., "Neglected Double Stars: First Measurement of Double Star SEI 1007 and Updating Measures to SEI 1006AB, SLE 964AC, and SEI 1011", *Journal of Double Star Observations*, **7**, 37, 2011
2. Micello G., "A New Companion for STF 2590, WDS 19523+1021", *Journal of Double Star Observations*, **8**, 28, 2012

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3. Brian D. Mason, Gary L. Wycoff, and William I. Hartkopf. Washington Double Star Catalog - <http://ad.usno.navy.mil/wds/>

4. *The Aladin Sky Atlas* - <http://aladin.u-strasbg.fr/aladin.gml>

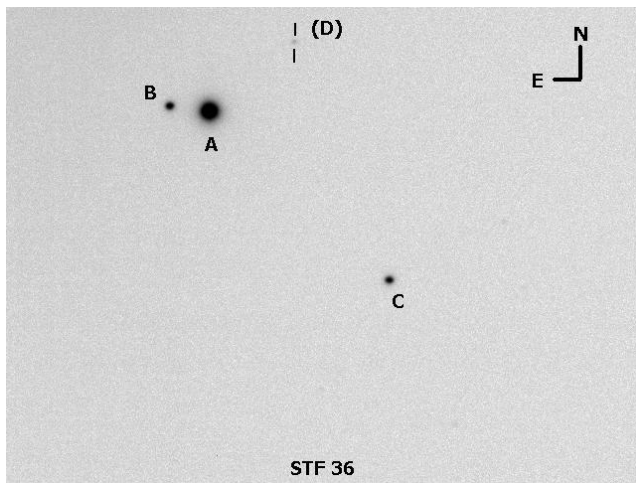


Figure 1: Image of the STF 36 system with proposed new D component. All images are by the author.

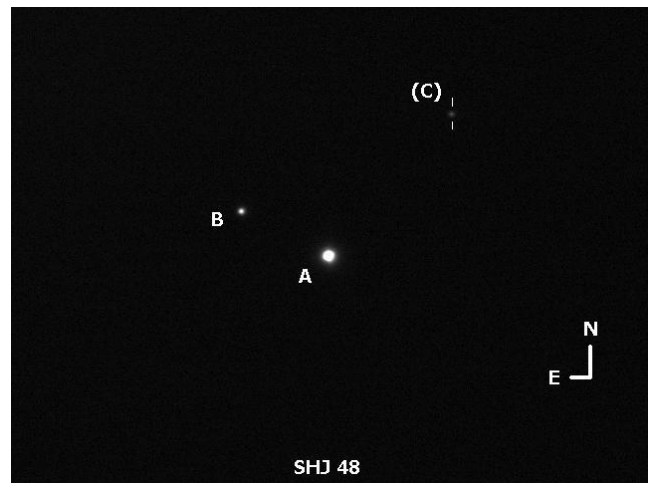


Figure 2: Image of the SHJ 48 system with proposed new C component.

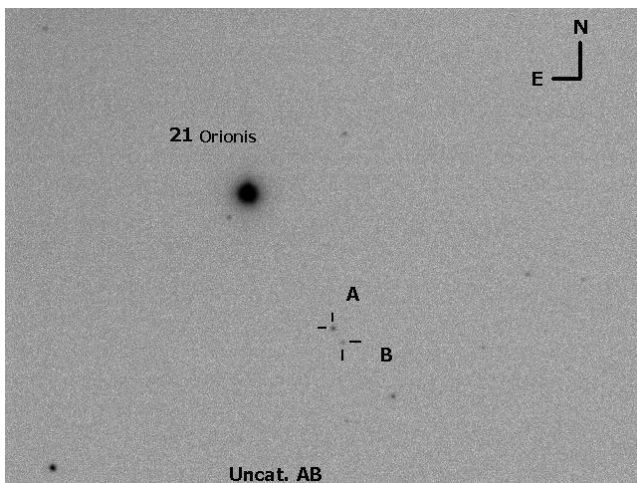


Figure 3: Proposed new double star system (marked A and B) located near 21 Orionis.

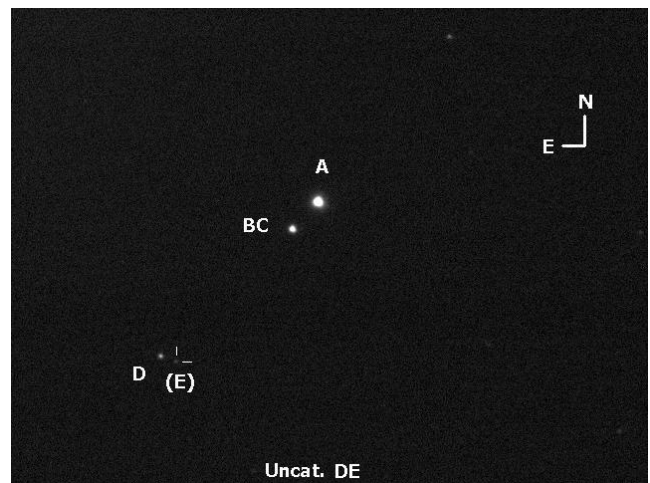


Figure 4: Proposed new E component for the STF 721/GU 17/BU 557 system.

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Table 1: Measurements of Systems Observed in the Period November 2011 – January 2012

Discoverer	WDS	Mags		PA (°)	SEP (")	Date	Fig.	Note
STF 12	00150+0849	6.06	7.51	146.2	11.87	2011.8658		1
STF 22 AB.C	00174+0853	7.13	7.66	233.0	3.89	2011.8658		2
STF 27	00224+1329	6.4	10.3	315.0	29.73	2011.8658		3
STF 36 AB	00324+0657	5.68	9.52	82.0	28.12	2011.8658		4
STF 36 AC	00324+0657	5.68	9.94	226.4	173.97	2011.8658		4
<b>Uncat. AD</b>	<b>00324+0657</b>	<b>5.68</b>	<b>13.1</b>	<b>308.9</b>	<b>77.67</b>	<b>2011.8658</b>	<b>1</b>	<b>5</b>
STF 84 AB	01038+0122	6.11	9.52	253.5	16.61	2011.8658		6
STF 90 AB	01058+0455	6.39	7.26	83.1	34.13	2011.8658		7
STF 91	01072-0144	7.43	8.56	313.9	4.73	2011.8658		8
STF 100 AB	01137+0735	5.22	6.26	62.3	23.80	2011.8658		9
STF 122	01269+0332	6.65	9.51	326.2	5.98	2011.8658		10
STF 231 AB	02128-0224	5.72	7.71	235.1	16.95	2011.8768		11
STF 274 AB	02315+0106	7.52	7.62	219.7	13.59	2011.8768		12
STF 281	02359+0536	4.97	9.08	82.5	7.97	2011.8768		13
STF 295	02412-0042	5.82	9.68	298.5	3.67	2011.8768		14
HJ 2224	04119-0850	6.55	9.76	306.1	56.67	2011.9918		15
SHJ 48 AB	04564-0510	5.46	8.93	75.0	66.48	2011.9918		16
<b>Uncat. AC</b>	<b>04564-0510</b>	<b>5.46</b>	<b>10.8</b>	<b>331.1</b>	<b>127.08</b>	<b>2011.9918</b>	<b>2</b>	<b>17</b>
STF 516 AB	04144-1015	5.03	8.53	143.5	6.32	2011.9918		18
STF 516 AC	04144-1015	5.03	9.7	156.9	133.67	2011.9918		18
STF 518 A.BC	04153-0739	4.51	9.7	101.9	82.44	2011.9918		19
STF 518 AC	04153-0739	4.51	11.47	97.4	77.33	2011.9918		19
STF 518 BC	04153-0739	9.7	11.47	330.5	8.16	2011.9918		19
STF 570	04352-0944	6.71	7.64	259.7	12.98	2011.9918		20
STF 590	04436-0848	6.74	6.78	318.1	9.28	2011.9918		21
STT 90 AC	04549+0836	7.04	12.2	97.0	39.75	2012.0192		22
STF 627 AB	05006+0337	6.59	6.95	259.9	20.94	2012.0192		23
STF 630 A.BC	05020+0137	6.50	7.71	50.2	14.71	2012.0192		24
A 2630 AD	05020+0137	6.50	10.39	101.1	132.61	2012.0192		24
STF 636	05030-0840	7.11	8.52	107.4	3.53	2011.9918		25
STF 642 AC	05068-0439	5.12	10.7	9.6	52.17	2011.9918		26
STF 649 AB	05083-0840	5.80	8.97	68.6	21.53	2011.9918		27
STF 649 AC	05083-0840	5.80	10.6	3.5	87.65	2011.9918		27
STF 649 BC	05083-0840	8.97	10.6	349.32	80.80	2011.9918		27
STF 654 AB	05133+0252	4.62	8.50	63.3	6.82	2011.9918		28
STF 654 AC	05133+0252	4.62	11.43	157.8	181.23	2011.9918		28
STT 517 AB.C	05135+0158	6.13	13.0	138.2	6.54	2011.9918		29
<b>Uncat.</b>	<b>Precise Coord</b> <b>05:19:06.14</b> <b>+02:34:27.0</b>	<b>12.7</b>	<b>13.9</b>	<b>226.3</b>	<b>11.19</b>	<b>2011.9918</b>	<b>3</b>	<b>30</b>
STF 696	05228+0333	4.95	6.76	28.9	31.73	2011.9918		31
STF 712 AB	05265+0256	6.70	8.59	66.7	3.11	2011.9918		32
KPR 2 AC	05265+0256	6.70	10.91	71.1	135.60	2011.9918		32
KNT 3 AC	05268+0306	4.57	13.88	196.5	88.22	2011.9918		33
STF 721 A.BC	05296+0309	7.09	9.14	148.6	24.93	2011.9918		34
GUI 7 AD	05296+0309	7.09	11.1	146.4	147.05	2011.9918		34
<b>Uncat. DE</b>	<b>Precise Coord</b> <b>05:29:39.01</b> <b>+03:06:47.5</b>	<b>11.1</b>	<b>12.76</b>	<b>259.7</b>	<b>10.71</b>	<b>2011.9918</b>	<b>4</b>	<b>35</b>
STF 788 AB	05447+0350	6.61	10.05	89.2	7.29	2011.9918		36
STF 788 AC	05447+0350	6.61	10.37	148.1	35.44	2011.9918		36
STF 789 AB	05450+0400	6.13	10.17	150.0	13.57	2011.9918		37
STF 797	05485+0442	7.37	9.76	18.7	7.21	2011.9918		38

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Table 1 Notes.

1. In Pisces. 35 Piscium. Spectral type A9V - F3V.
2. In Pisces. 38 Piscium. Multiple star. The AB component is "A 1803"; Sep. 0,2" - PA 307°.
3. In Pisces. 42 Piscium. Spectral type K3III - G5.
4. In Pisces. 51 Piscium. Multiple star. A The component is "MCA 1Aa,Ab"; Sep. 0,2" - PA 268°.
5. In Pisces. Not yet in WDS. New D component in STF 36. See also Figure 1.
6. In Cetus. 26 Ceti. Multiple star.
7. In Pisces. 77 Piscium. Multiple star. Spectral type F3V - F5V.
8. In Cetus.
9. In Pisces. Zeta Piscium. Multiple star. Spectral type A7IV - F7V.
10. In Pisces. Spectral type B9V - A8V. Sep. and PA increasing.
11. In Cetus. 66 Ceti. Multiple star.
12. In Cetus. Multiple star.
13. In Cetus. Nu Ceti.
14. In Cetus. 84 Ceti.
15. In Eridanus. Discovered by John Herschel in 1894.
16. In Eridanus. 62 Eridani. The A component is "HDS 641 Aa,Ab"; Sep. 0,6" - PA 247°.
17. In Eridanus. Not yet in WDS. New C component in SHJ 48. See also Figure 2.
18. In Eridanus. 39 Eridani. Multiple star.
19. In Eridanus. 40 Eridani. Omicron-2 Eridani or Keid.
20. In Eridanus.
21. In Eridanus. 55 Eridani. Spectral type G5III - F8.
22. In Orion. Multiple star.
23. In Orion. Multiple star. Spectral type B9Vn - B9Vn.
24. In Orion. Multiple star.
25. In Eridanus. PA increasing. Sep. decreasing.
26. In Eridanus. 66 Eridani. Multiple star. Spectral type B9V - A1V.
27. In Eridanus. Multiple star. Near to Lambda Eridani.
28. In Orion. Rho Orionis. Multiple star.
29. In Orion. Multiple star.
30. In Orion. Pair not yet in WDS. Near to 21 Orionis. See also Figure 3. Precise coordinate Aladin Sky Atlas: 05:19:06.14 +02:34:27.0
31. In Orion. 23 Orionis.
32. In Orion. Multiple star.
33. In Orion. Psi Orionis. Multiple star. Near to STF 712.
34. In Orion. Multiple star. The BC component is "BU 557"; Sep. 0,2" - PA 160°. GUI 7AD is neglected double star.
35. In Orion. Pair not yet in WDS. See also Figure 4. Precise coordinate Aladin Sky Atlas: 05:29:39.01 +03:06:47.5
36. In Orion. Multiple star.
37. In Orion. Multiple star.
38. In Orion.

Multiple star. B is a White Dwarf Star; C is a Red Dwarf Star. Distance: 15,7 Light Years.

Table 2: Proper Motions of the Proposed New Components Taken from NOMAD1.

Discoverer		WDS	pmRA - pmDE NOMAD1	
STF 36	A	00324+0657	45.9	3.5
STF 36	B		0.0	0.0
STF 36	C		-5.9	-5.2
Uncat.	D		8.8	-7.3
SHJ 48	A	04564-0510	-5.6	-2.3
SHJ 48	B		-3.7	-1.3
Uncat.	C		0.0	-1.7
Uncat.	A	Precise Coordinate 05:19:06.14 +02:34:27.0	0.2	-19.4
	B		-4.7	-13.8
Uncat.	D	Precise Coordinate 05:29:39.01 +03:06:47.5	23.5	-13.2
	E		-12.5	-3.0