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The bibliographical entries for *Individual Stars* and *Collections of Data*, as well as a few *General* entries, are categorized according to the following coding scheme. Data from archives or databases, or previously published, are identified with an asterisk. The observation codes in the first four groups may be followed by one of the following wavelength codes.

- g. γ -ray. i. infrared. m. microwave. o. optical
 r. radio u. ultraviolet x. x-ray

1. Photometric data

- a. CCD b. Photoelectric c. Photographic d. Visual

2. Spectroscopic data

- a. Radial velocities b. Spectral classification c. Line identification d. Spectrophotometry

3. Polarimetry

- a. Broad-band b. Spectropolarimetry

4. Astrometry

- a. Positions and proper motions b. Relative positions only c. Interferometry

5. Derived results

- a. Times of minima b. New or improved ephemeris, period variations
 c. Parameters derivable from light curves d. Elements derivable from velocity curves
 e. Absolute dimensions, masses f. Apsidal motion and structure constants
 g. Physical properties of stellar atmospheres h. Chemical abundances
 i. Accretion disks and accretion phenomena j. Mass loss and mass exchange
 k. Rotational velocities

6. Catalogues, discoveries, charts

- a. Catalogues b. Discoveries of new binaries and novae
 c. Identification of optical counterparts of γ -ray, x-ray, IR, or radio sources d. Finding charts

7. Observational techniques

- a. New instrument development b. Observing techniques
 c. Reduction procedures d. Data-analysis techniques

8. Theoretical investigations

- a. Structure of binary systems b. Circumstellar and circumbinary matter
 c. Evolutionary models d. Loss or exchange of mass and/or angular momentum

9. Statistical investigations

10. Miscellaneous

- a. Abstract b. Addenda or errata

Abbreviations

AD	accretion disk	HMXB	high-mass x-ray binary	QPO	quasi-periodic oscillation
BH	black hole	IP	intermediate polar	RV	radial velocity
CB	close binary	LC	light curve	SB	spectroscopic binary
CV	cataclysmic variable	LMXB	low-mass x-ray binary	WD	white dwarf
EB	eclipsing binary	NS	neutron star	WR	Wolf-Rayet star

Several entries of this issue use the abbreviation:

OAP — Odessa Astronomical Publications (issue of the Odessa Astronomical Observatory of the Odessa State University, Ukraine), Astroprint Publishing Company, Ukraine

Individual Stars

- Z And *Ikeda, Y. et al.* (8 authors) 2004, ApJ 604, 357. (1bdo) Polarization of H α wings.
- LL And 2004, IAU Circ. 8345. (1ad) Outburst of CV.
- QR And *Schwarz, R., Reinsch, K.* 2004, Astron. Nachr. 325 Suppl. 1/2004, 107. (1x, 2dx) Supersoft x-ray source.
- QU And (HD 7205) *Fekel, F.C.* 2004, AJ 127, 2931. (2ao, 5d) Chromospherically active system.
- AE Aqr *Ikhsanov, N.R., Neustroev, V.V., Beskrovnaya, N.G.* 2004, A&A 421, 1131. (5i)
- EL Aqr *Wadhwa, S.S., Zealey, W.J.* 2004, Ap&SS 291, 21. (5ce)
- HU Aqr *Somov, N.N. et al.* (5 authors) 2003, OAP 16, 73. (2c, 6c) Unstable processes in eclipsing polar.
- V603 Aql *Baklanov, A.V., Antonyuk, O.I., Pavlenko, E.P.* 2003, OAP 16, 15.(1a, 5b) Nova-like variable V603 Aquilae in 1999.
Suleimanov, V.F. et al. (8 authors) 2003, OAP 16, 81. (1b, 5c) Disk precession of in 2001-2002.
- V802 Aql *Samec, R.G., Martin, M., Faulkner, D.R.* 2004, IBVS 5527. (1a, 5a, 6d) Dwarf AW UMa-type binary system.
- V871 Aql *Wolf, M. et al.* (9 authors) 2004, A&A 420, 619. (1ao, 5af)
- V1333 Aql (Aql X-1) *Maitra, D, Bailyn, C.D.* 2004, ApJ 608, 444. (1bx) Evolution of spectral states during 2000 outburst.
- V1405 Aql (XB 1916–053) *Boirin, L. et al.* (5 authors) 2004, A&A 418, 1061. (2dxc) LMXB
- V1487 Aql (GRS 1915+105) *Done, C., Wardziński, G., Gierliński, M.,* 2004, MNRAS 349, 393. (1bx, 5dgi, 8a) Comparison with "normal" black holes.
Fender, R., Belloni, T. 2004, ARA&A 42, 317. (1ior, 2dx, 5i) Review of BH binary and discussion of disk-jet coupling in relativistic jet source.
Misra, R. et al. (5 authors) 2004, ApJ 609, 313. (1x*, 9) Chaotic behaviour in black-hole system.
Tagger, M. et al. (4 authors) 2004, ApJ 607, 410. (2g) Magnetic flood scenario for variability.
- V1493 Aql (Nova 1999) *Venturini, C.C. et al.* (4 authors) 2004, AJ 128, 405. (2edi) Nova with unusual spectrum.
- V1494 Aql *Hachisu, I., Kato, M., Kato, T.* 2004, ApJ 606, L139. (2g) Model of two-armed spiral shocks in AD.
Kiss, L.L., Csák, B., Derekas, A. 2004, A&A 416, 319. (1ao, 6c) Eclipsing nova.
- V1548 Aql *Primak, N., Pavlenko, E.P.* 2003, OAP 16, 55. (1a, 6c) Extremely snow nova.
- FO Aqr *Evans, P.A. et al.* (4 authors) 2004, MNRAS 349, 715. (1aux, 5cdgi) Twisted accretion curtains.
- IO Aqr *Dimitrov, W., Kolev, D., Schwarzenberg-Czerny, A.* 2004, A&A 417, 689. (1bo, 2ao, 5cde)
- V821 Ara (GX 339-4) *Hynes, R.I. et al.* (5 authors) 2004, ApJ 609, 313. (1x*, 9) Clues to the distance of black-hole binary candidate.
Miller, J.M. et al. (12 authors) 2004, ApJ 606, L131. (1bx) Evidence of BH spin.

Zdziarski, A.A. et al. (7 authors) 2004, MNRAS 351, 791. (1gx, 5gi, 8a) Distance and study of x-ray variability.

XY Ari *Salinas, A., Schlegel, E.M.* 2004, AJ 128, 1331. (1x, 2cdx) Chandra observations.

V405 Aur *Evans, P.A., Hellier, C.* 2004, MNRAS 353, 447. (1x, 5gi) Modelling the soft and x-ray emission.

V432 Aur *Siviero, A. et al.* (7 authors) 2004, A&A 417, 1083. (1bo, 2ao, 5cde)

TT Boo *Olech, A. et al.* (7 authors) 2004, Acta Astronomica 54, 233. (1a, 5b) Superhump period change.

CV Boo *Nelson, R.H.* 2004, IBVS 5535. (1a, 2a, 5cd) Detached solar-type binary.

EF Boo *Özdemir, S. et al.* (4 authors) 2004, Astron. Nachr. 325, 332. (5cde) LC and RV curve solution of W-type W UMa system.

SV Cam *Patkós, L., Csizmadia, S.* 2004, Astron. Nachr. 325, 424. (1bo, 5c) LC analysis of EB with spots.

AY Cam *Williamson, R.M., Sowell, J.R., Van Hamme, W.* 2004, AJ 128, 1319. (1bo, 2ao*, 5cde)

YZ Cnc *Hakala, P. et al.* (5 authors) 2004, A&A 420, 273. (1x,5j)

AT Cnc *Kozhevnikov, V.P.* 2004, A&A 419, 1035. (1bo) Superhumps in dwarf nova.

DW Cnc *Patterson, J. et al.* (10 authors) 2004, PASP 116, 516. (1bo, 2ad) Rapid oscillation periods elucidated.

Rodríguez-Gil, P. et al. (4 authors) 2004, MNRAS 349, 367. (1ao, 2acd, 5bdegi) Photometric and spectroscopic study.

CR CMa *Samec, Ronald G. et al.* (5 authors) 2004, IBVS 5520. (1a, 5abc, 6d) New solar-type near contact binary.

CX CMa *Nelson, R.H., Terrell, D.* 2004, IBVS 5545. (1a, 5abc) Early-type detached EB.

EM Car *Pfeiffer, R.J., Stickland, D.J.* 2004, Observatory 124, 117. (5gj) New model fits light curves and wind-line profiles.

OY Car *Hakala, P., Ramsay, G.* 2004, A&A 416, 1047. (2dx*, 1bou*, 5cdi)

AB Cas *Rodríguez, E. et al.* (8 authors) 2004, MNRAS 353, 310. (1bo, 5abcg) The primary component is a δ Sct-type pulsator.

IR Cas *Zhu, Li.-Y., Qian, S.-B., Xiang, F.-Y.* 2004, PASJ 56, 809. (1bo, 5ab) Period variation.

V459 Cas *Lacy, C.H.S., Claret, A., Sabby, J.A.* 2004, AJ 128, 1340. (1bo, 2ao, 5abcde)

V685 Cen *Mayer, P., Pribulla, T., Chochol, D.* 2004, IBVS 5563. (1a, 5c) Variable depths of minima.

VV Cep *Pollmann, E.* 2004, Astron. Nachr. 325 Suppl. 1/2004, 92. (2d) Temporal behaviour of H α equivalent width during 1997/98 eclipse.

CQ Cep *Kartasheva, T.A. et al.* (4 authors) 1998, Bull. Special Astroph. Obs. 46, 50. (3a, 6c) Polarimetric study of WR EB.

Kartasheva, T.A., Svechnikov, M.A. 2000, Bull. Special Astroph. Obs. 49, 101. (2a, 6d) Close WR binary system plus third body.

CW Cep *Erdem, A. et al.* (8 authors) 2004, Astron. Nachr. 325, 336. (1ao, 5cf).

CX Cep *Kartasheva, T.A.* 2002, Bull. Special Astroph. Obs. 53, 18. (2a, 6c) Attempt to refine component masses of WR EB.

	<i>Kartasheva, T.A.</i> 2002, <i>Bull. Special Astroph. Obs.</i> 54, 56. (3a) Polarimetric study of very close WR EB.
EK Cep	<i>Marques, J.P., Fernandes, J., Monteiro, M.J.P.F.G.</i> 2004, <i>A&A</i> 422, 239. (8ac)
VW Cet	<i>Lloyd, C., West, D.</i> 2004, <i>IBVS</i> 5529. (1a) No periodic variation above 0.01-0.02 mag.
GP Com	<i>Strohmayr, T.E.</i> 2004, <i>ApJ</i> 608, L53. (1bx) Nitrogen and neon lines detected, other elements inferred.
T CrB	<i>Zamanov, R. et al.</i> (4 authors) 2004, <i>MNRAS</i> 350, 1477. (1bou, 5cg) Flickering variability.
UW CrB (MS 1603.6+2600)	<i>Hynes, R.I., Robinson, E.I., Jeffrey, E.</i> 2004, <i>ApJ</i> 608, L101. (1ao) Discovery of optical bursts of x-ray binary.
W Crv	<i>Odell, A.P., Cushing, G.E.</i> 2004, <i>IBVS</i> 5514. (1a, 5ab, 6d) Changes in period and LC.
59 Cyg	<i>Maintz, M. et al.</i> (5 authors) 2004, <i>Astron. Nachr.</i> 325 Suppl. 1/2004, 18. (2ao) Be+sdO binary.
SS Cyg	<i>Mauche, C.W.</i> 2004, <i>ApJ</i> 610, 422. (1x, 2x) Low-energy x-ray spectrum of outburst.
CG Cyg	<i>Afşar, M., Heckert, P.A., Ibanoglu, C.</i> 2004, <i>A&A</i> 420, 595. (1ao, 5bc)
KR Cyg	<i>Sipahi, E., Gülmen, Ö.</i> 2004, <i>Ap&SS</i> 293, 307. (1b, 5bc)
V404 Cyg	<i>Hynes, R.I. et al.</i> (14 authors) 2004, <i>ApJ</i> 611, 125. (1xo, 2do) Correlated observations in quiescence. <i>Zurita, C. et al.</i> (6 authors) 2004, <i>MNRAS</i> 352, 877. (1aoi, 5bcg) Long-term optical/infrared variability.
V453 Cyg	<i>Southworth, J., Maxted, P.F.L., Smalley, B.</i> 2004, <i>MNRAS</i> 351, 1277. (1bo*, 2ac, 5cdefg, 8c) Photometric and spectroscopic study.
V469 Cyg	<i>Caton, D.B.</i> 2004, <i>IBVS</i> 5531. (1a, 5ab) Discovery of δ Sct star.
V885 Cyg	<i>Lacy, C.H.S. et al.</i> (4 authors) 2004, <i>AJ</i> 128, 1324. (1bo, 2ao, 5cde)
V1341 Cyg (Cyg X-2)	<i>O'Brien, K. et al.</i> (5 authors) 2004, <i>MNRAS</i> 350, 587. (1bx, 2d, 5g) X-ray and high-speed spectroscopic observations.
V1357 Cyg (Cyg X-1)	<i>Karitskaya, E.A. et al.</i> (6 authors) 2003, <i>OAP</i> 16, 33. (2c, 6j) Optical high-resolution spectroscopy as a method of investigating x-ray binary. <i>Liu, C.Z., Li, T.P.</i> 2004, <i>ApJ</i> 611, 1084. (2x) X-ray spectral variability.
V1500 Cyg	<i>Pavlenko, E.P.</i> 2003, <i>OAP</i> 16, 41. (1b, 6c) Magnetic asynchronous nova in an “Early” and a “Middle” post-nova state.
V1504 Cyg	<i>Antonyuk, O.I.</i> 2003, <i>OAP</i> 16, 14. (1b) Superoutburst of V1504 Cygni in 2003.
V1521 Cyg (Cyg X-3)	<i>Choudhury, M. et al.</i> (5 authors) 2004, <i>A&A</i> 420, 665. (1x, 5c)
V1974 Cyg	<i>Cassatella, A. et al.</i> (5 authors) 2004, <i>A&A</i> 420, 571. (5cd)
V2275 Cyg	<i>Garnavich, P.M. et al.</i> (7 authors) 2004, <i>IBVS</i> 5519. (1a, 6d) Rapid variations in Nova Cyg 2000. <i>Ostrova, N.I., Shugarov, S.Yu., Andronov, I.L.</i> 2003, <i>OAP</i> 16, 37. (1a, 6a) CCD photometry of CV in 2003.
FZ Del	<i>Hanna, M.A., Awadalla, N.S.</i> 2004, <i>Ap&SS</i> 291, 85. (1b, 5bc)
AA Dor	<i>Rauch, T.</i> 2004, <i>Ap&SS</i> 291, 275. (2c, 5dg)

AG Dra *Ikeda, Y. et al.* (8 authors) 2004, ApJ 604, 357. (1bdo) Polarization profile of H α due to Raman scattering of Lyman β .

AI Dra *Lázaro, C., Martínez-Pais, I.G., Arévalo, M.J.* 2004, MNRAS 351, 707. (1aibo*, 2ab, 5abcdeg) Revised fundamental parameters.

AS Eri *Mkrtychian, D.E. et al.* (11 authors) 2004, A&A 419, 1015. (1b) Pulsations in Algol-type system.

WX Eri *Arentoft, T. et al.* (6 authors) 2004, A&A 418, 249. (1ao, 6ac) No δ Scuti-type pulsations found.

OW Gem (HDE 258878) *Griffin, R.F.* 2004, Observatory 124, 136. (5cd) Accuracy of eccentricity determination.

V369 Gem *Barway, S., Pandey, S.K.* 2004, IBVS 5553. (1b, 5b) New BVRI photometry.

CT Her *Kim, S.L. et al.* (9 authors) 2004, IBVS 5537. (1a, 6d) Short-period pulsating component.

EF Her *Kim, S.L. et al.* (9 authors) 2004, IBVS 5537. (1a, 6d) Short-period pulsating component.

HZ Her (Her X-1) *Still, M., Boyd, P.* 2004, ApJ 606, L135. (2g) Change in precession period consistent with radiation-driven warping.
Zane, S. et al. (5 authors) 2004 MNRAS 350, 506. (1aux, 5bgi) *XMM-Newton* EPIC and Optical Monitor observations.

V446 Her *Pavlenko, E.P. et al.* (5 authors) 2003, OAP 16, 48. (1b, 6c) Multicolour photometry of classical nova in quiescence.

V861 Her *Csizmadia, Sz. et al.* (4 authors) 2004, A&A 417, 745. (1bo, 6c)

SS Hya *Lloyd, C., West, D.* 2004, IBVS 5529. (1a) No periodic variation above 0.01-0.02 mag.

EX Hya *Hoogerwerf, R., Brickhouse, N.S., Mauche, C.W.* 2004, ApJ 610, 411. (1x, 2x, 5d) X-ray RV curves enable mass determination of WD (0.49 solar).

EZ Hya *Yang, Y.-G., Qian, S.-B., Zhu, C.-H.* 2004, PASP 116, 826. (1ao, 5bcde) Simultaneous solution of new photometry and published radial velocities.

VW Hyi *Godon, P. et al.* (6 authors) 2004, ApJ 612, 429. (2u) Dwarf nova in quiescence.

SU Ind *Budding, E. et al.* (4 authors) 2004, Astron. Nachr. 325, 433. (1abo, 5c) LC analysis of evolved F-type EB with rapidly rotating components.

BS Ind *Guenther, E.W. et al.* (4 authors) 2004, Astron. Nachr. 325 Suppl. 1/2004, 7. (1ao, 2a, 5cde)

V345 Lac *Wolf, M. et al.* (9 authors) 2004, A&A 420, 619.(1ao, 5af)

V401 Lac *Wolf, M. et al.* (9 authors) 2004, A&A 420, 619.(1ao, 5af)

SW Lac *Albayrak, B. et al.* (4 authors) 2004, A&A 420, 1039. (1bo, 5bc)

93 Leo *Griffin, R.E.M., Griffin, R.F.* 2004, MNRAS 350, 685. (2ab, 5deg, 8c) Spectroscopic study.

T Leo *Vrieland, S., Ness, J.-U., Schmitt, J.H.M.M.* 2004, A&A 419, 673. (2dx) Intermediate polar?

AM Leo *Miller, M.E., Osborn, W., Terrell, D.* 2004, PASP 116, 337. (1ao, 2abc)

CE Leo *Kang, Y.W. et al.* (5 authors) 2004, AJ 128, 846. (1aoi, 5abcg) Chromospherically active EB.

UZ Lib	<i>Zboril, M., Strassmeier, K.G., Avrett, E.H.</i> 2004, A&A 421, 295. (2c, 5gh)
GW Lib	<i>van Zyl, L. et al.</i> (14 authors) 2004, MNRAS 350, 307. (1ao, 5bg) Non-radial pulsation modes.
MV Lyr	<i>Hoard, D.W. et al.</i> (7 authors) 2004, ApJ 604, 346. (1abou) Temperatures of stars, distance to system.
V524 Mon	<i>Samec, R., Loflin, T.</i> 2004, Observatory 124, 284. (1aoi, 2abc)
V694 Mon (MWC 560)	<i>Hillwig, T., Livio, M., Honeycutt, R.K.</i> 2004, PASP 116, 397. (2ado) New evidence for collimated jet.
V714 Mon	<i>Qian, S.-B., et al.</i> (5 authors) 2004, PASJ 56, 465. (1ao, 5ab) Period variation.
HH Nor	<i>Kiss, L.L., Derekas, A.</i> 2004, IBVS 5555. (1a, 5b, 6d) Double star with RR Lyr and EB components.
QX Nor (4U 1608–52)	<i>Šimon, V.</i> 2004, A&A 418, 617. (2dx, 6ci) X-ray transient.
RS Oph	2004, IAU Circ. 8396. (1c) Outburst of recurrent nova in 1907.
V426 Oph	<i>Homer, L. et al.</i> (9 authors) 2004, ApJ 610, 991. (1ox, 2x) 4.2-hr period modulation discovered.
V2051 Oph	<i>Baptista, R., Bortoletto, A.</i> 2004, AJ 128, 411. (1ao, 5gi) Eclipse mapping of flickering sources in dwarf nova.
V2134 Oph (MXB 1659–29)	<i>Wijnands, R. et al.</i> (4 authors) 2004, ApJ 606, L61. (1bx) Cooling curve of heated neutron star crust.
V2388 Oph	<i>Yakut, K., Kalomeni, B., İbanoğlu, C.</i> 2004, A&A 417, 725. (1bo, 5cde)
V2574 Oph	2004, IAU Circ. 8323. (1ad, 4a, 6b) Possible new nova. 2004, IAU Circ. 8324. (1cd, 2c, 4a) Designation and new data. 2004, IAU Circ. 8328. (1d, 2c) Slow nova. 2004, IAU Circ. 8370. (2bi) Low-excitation phase.
FU Ori	<i>Reipurth, B., Aspin, C.</i> 2004, ApJ 608, L65. (1abi) Adaptive optics study of newly discovered companion.
FZ Ori	<i>Byboth, K.N., Markworth, N.L., Bruton, W.B.</i> 2004, IBVS 5554. (1a, 5abc, 6d) Photometric analyses of CB.
HK Ori	<i>Baines, D. et al.</i> (20 authors) 2004, MNRAS 353, 697. (2abc, 3a, 5g) Spectro-astrometry and EXPORT data.
85 Peg	<i>Griffin, R.F.</i> 2004, Observatory 124, 258. (2ao, 5d)
AG Peg	<i>Eriksson, M., Johansson, S., Wahlgren, G.M.</i> 2004, A&A 422, 987. (5g, 8b)
BX Peg	<i>Lee, J.W. et al.</i> (5 authors) 2004, MNRAS 352, 1041. (1ao, 5abcefg) Photometric study and physical parameters.
IP Peg	<i>Ishioka, R., et al.</i> (5 authors) 2004, PASJ 56, 481. (2ao, 5i) Line-profile variations during an eclipse.
LX Peg	<i>Wetterer, C., Majcen, S.</i> 2004, IBVS 5515. (1a, 5ab) W UMa-type EB.
β Per	<i>Chung, S.M. et al.</i> (5 authors) 2004, ApJ 606, 1184. (1bx) Doppler shifts and broadening in x-rays.
RY Per	<i>Barai, P. et al.</i> (13 authors) 2004, ApJ 608, 989. (2ac, 5j) Mass and angular momentum transfer in Algol.
GK Per	<i>Hellier, C., Harmer, S., Beardmore, A.P.</i> 2004, MNRAS 349, 710. (1bx, 5bgi) X-rays QPOs and accretion geometry.

V615 Per	<i>Southworth, J., Maxted, P.F.L., Smalley, B.</i> 2004, MNRAS 349, 547. (1ao, 2ab, 5abcde, 8c) Photometric and spectroscopic study.
σ Psc (HD 6118)	<i>Konacki, M., Lane, B.F.</i> 2004, ApJ 610, 443. (2a*, 4c, 5e, 7a) Interferometric orbit of SB.
WZ Sge	<i>Howell, S.B. et al.</i> (4 authors) 2004, PASP 116, 527. (1abo, 5bi) Super-outburst photometry.
V1223 Sgr	<i>Beuermann, K. et al.</i> (5 authors) 2004, A&A 419, 291. (4a, 6ei) CV
V4046 Sgr	<i>Stempels, H.C., Gahm, G.F.</i> 2004, A&A 421, 1159. (2ac, 5bg)
V4332 Sgr	<i>Banerjee, D.P.K., Ashok, N.M.</i> 2004, ApJ 604, L57. (1abo) Unusually strong KI and NaI lines in emission. <i>Banerjee, D.P.K. et al.</i> (5 authors) 2004, ApJ 610, L29. (2i) Null detection of radioactive ^{26}Al .
V4641 Sgr	<i>Umemura, M., et al.</i> (13 authors) 2004, PASJ 56, 823. (1ao) An outburst in 2003.
V4642 Sgr (Nova 2000)	<i>Venturini, C.C. et al.</i> (4 authors) 2004, AJ 128, 405. (2edi) Nova with unusual spectrum.
V5113 Sgr	2004, IAU Circ. 8370. (2bi) FeII-type nova.
V5114 Sgr	2004, IAU Circ. 8306. (1acd, 4a, 6b) Possible new nova. 2004, IAU Circ. 8307. (2c, 5g) Spectroscopic features. 2004, IAU Circ. 8310. (1a) Photometric evolution. 2004, IAU Circ. 8316. (1d) Visual magnitudes estimations. 2004, IAU Circ. 8368. (2ci, 5g) Coronal phase.
κ Sco	<i>Harmanec, P., Uytterhoeven, K., Aerts, C.</i> 2004, A&A 422, 1013. (2c) disentangling non radial oscillation in SB.
V1036 Sco (HD 159176)	<i>De Becker, M. et al.</i> (7 authors) 2004, A&A 416, 221. (2dx, 6gj)
V1186 Sco	2004, IAU Circ. 8369. (1acd, 2c, 4a, 6b) Possible new nova. 2004, IAU Circ. 8371. (1ad) Designation and magnitudes. 2004, IAU Circ. 8372. (1a)
V1187 Sco	2004, IAU Circ. 8380. (1a, 4a, 6b) Possible new nova. 2004, IAU Circ. 8381. (1ac, 2c, 4a) A classical nova? 2004, IAU Circ. 8382. (1ad, 2cdi, 5g) Spectroscopic features. 2004, IAU Circ. 8386. (2bi) High resolution data. 2004, IAU Circ. 8392. (2bi) 2004, IAU Circ. 8405. (2bi) ONeMg-type nova.
CR Sct	<i>Wolf, M. et al.</i> (9 authors) 2004, A&A 420, 619. (1ao, 5af)
AO Ser	<i>Kim, S.L. et al.</i> (5 authors) 2004, IBVS 5538. (1a, 6d) Short-period pulsating component.
MM Ser (Ser X-1)	<i>Masetti, N. et al.</i> (16 authors) 2004, A&A 423, 651. (1x) High state. <i>Migliari, S. et al.</i> (7 authors) 2004, MNRAS 351, 186. (1rx, 5g) Radio detection in soft x-ray sources.
RW Sex	<i>Hillwig, T., Livio, M., Honeycutt, R.K.</i> 2004, PASP 116, 397. (2ado) Unsuccessful search for collimated jet.
AH Tau	<i>Byboth, K.N., Markworth, N.L., Bruton, W.B.</i> 2004, IBVS 5554. (1a, 5abc, 6d) Photometric analyses of CB.
GR Tau	<i>Gu, S. et al.</i> (7 authors) 2004, A&A 423, 607. (1ao, 5bc)
V1062 Tau	<i>Lipkin, Y.M., Leibowitz, E.M., Orio, M.</i> 2004, MNRAS 349, 1323. (1ao, 5bgi) Low states, short outbursts and period switching.

RW Tri	<i>Groot, P.J., Rutten, R.G.M., van Paradijs, J.</i> 2004, A&A 417, 283. (2ad, 5i) Eclipsing nova-like CV. <i>Hillwig, T., Livio, M., Honeycutt, R.K.</i> 2004, PASP 116, 397. (2ado) Unsuccessful search for collimated jet.
ζ TrA	<i>Skuljan, J., Ramm, D.J., Hearnshaw, J.B.</i> 2004, MNRAS 352, 975. (2a, 5abde) Orbital parameters.
UX UMa	<i>Hillwig, T., Livio, M., Honeycutt, R.K.</i> 2004, PASP 116, 397. (2ado) Unsuccessful search for collimated jet.
BZ UMa	<i>Price, A. et al.</i> (16 authors) 2004, IBVS 5526. (1a, 5c, 6d) Flickering and periodic activity in the 2004 outburst.
DW UMa	<i>Stanishev, V. et al.</i> (6 authors) 2004, A&A 416, 1057. (1a, 5i) Eclipsing nova-like CV.
EU UMa	<i>Somov, N.N. et al.</i> (4 authors) 2003, OAP 16, 69. (2c, 5g) Evidence for asynchronism in magnetic CV.
KV UMa (J1118+480)	<i>Malzac, J., Merloni, A., Fabian, A.C.</i> 2004, MNRAS 351, 253. (1oux, 5gi, 8ac) Understanding the optical/x-ray correlations. <i>Torres, M.A.P.</i> (6 authors) 2004, ApJ 612, 1026. (2ao, 5ei) Observations in quiescence, Doppler tomograms.
GT UMa	<i>Mikuz, H. et al.</i> (4 authors) 2004, IBVS 5530. (1a, 5ab) Improved orbital ephemeris.
TU UMi	<i>Pych, W., Rucinski, S.M.</i> 2004, IBVS 5524. (1a, 5ab, 6d) Contact binary in triple system.
γ ² Vel	<i>Schild, H. et al.</i> (10 authors) 2004, A&A 422, 177. (1x, 5gj)
GP Vel (Vela X-1)	<i>Goldstein, G., Huenemoerder, D.P., Blank, D.</i> 2004, AJ 127, 2310. (2dx, 5gi) Variation of x-ray line and continuum flux with orbital phase.
BH Vir	<i>Xiang, F.Y., Zhou, Y.C.</i> 2004, PASJ 56, 469. (5c) Spot activity.
NN Vir	<i>Pazhouhesh, R., Melendo, E.G.</i> 2003, OAP 16, 51. (1b, 2a, 6c) Radial-velocity and light-curve analysis of EB.
V407 Vul (RX J1914.4+2456)	<i>Norton, A.J., Haswell, C.A., Wynn, G.A.</i> 2004, A&A 419, 1025. (2dx*) Face-on, stream-fed intermediate polar. <i>Strohmayr, T.E.</i> 2004, ApJ 610, 416. (1x) Accretion induced spin-up detected in double degenerate binary.

HR, HD, HDE, BD, CoD, CPD, SAO Objects

HR 1736	<i>Griffin, R.F.</i> 2004, Observatory 124, 97. (2ao, 5d) Cool component of composite-spectrum system.
HR 3416	<i>Griffin, R.F.</i> 2004, Observatory 124, 97. (2ao, 5d) Cool component of composite-spectrum system.
HR 6388	<i>Griffin, R.F.</i> 2004, Observatory 124, 294. (2ao) No evidence for γ-velocity change.
HD 5980	<i>Koenigsberger, G.</i> 2004, Rev. Mex. Astron. Astrofis. 40, 107. (2du, 5j) Stellar wind observations support view that companion is WR star.
HD 6118	(see σ Psc)
HD 7205	(see QU And)
HD 18955	<i>Fekel, F.C., Henry, G.W., Alston, F.M.</i> 2004, AJ 127, 2303. (1bo, 2ao, 5d) Chromospherically active binary with eccentric orbit.

HD 23642	<i>Munari, U. et al.</i> (6 authors) 2004, A&A 418, L31. (1bo, 2ao, 5cde) Distance to Pleiades from double-lined eclipsing binary parameters.
HD 27483	<i>Konacki, M., Lane, B.F.</i> 2004, ApJ 610, 443. (2a*, 4c, 5e, 7a) Interferometric orbit of Hyades SB with 3-day period.
HD 38563S	<i>Yanagida, T., Ezoe, Y.-I., Makishima, K.</i> 2004 PASJ 56, 813. (1ax, 2x) X-ray flares.
HD 44179	<i>Cohen, M. et al.</i> (4 authors) 2004, AJ 127, 2362. (1bou, 5j) Deep images of surrounding nebula (“red rectangle”) reveal structure.
HD 142353	<i>Griffin, R.F.</i> 2004, Observatory 124, 190. (2ao, 5d)
HD 152248	<i>Sana, H. et al.</i> (5 authors) 2004, MNRAS 350, 809. (1ax, 5eg, 8c) Results of an <i>XMM-Newton</i> campaign.
HD 153919 (4U 1700–37)	<i>Abubekerov, M.K.</i> 2004, AZh, 81, 714.(5x, 2a, 6c) Mass of compact object in x-ray binary.
HD 159176	(see V1036 Sco)
HD 164025	<i>Griffin, R.F.</i> 2004, Observatory 124, 190. (2ao, 5d)
HD 165007	<i>Griffin, R.F.</i> 2004, Observatory 124, 190. (2ao, 5d)
HD 181958	<i>Ramm, D.J., Skuljan, J., Hearnshaw, J.B.</i> 2004, Observatory 124, 167. (2ao, 5d)
HD 199378/9	<i>Griffin, R.F.</i> 2004, Observatory 124, 97. (2ao, 5d) Cool component of composite-spectrum system.
HD 209746	<i>Griffin, R.F.</i> 2004, Observatory 124, 190. (2ao, 5d)
HD 211853	<i>Kartasheva, T.A.</i> 2002, Bull. Special Astroph. Obs. 54, 46. (3a) Polarimetric studies of multiple system including a WR star.
HD 221866	<i>Kaye, A.B., Gray, R.O., Griffin, R.F.</i> 2004, PASP 116, 558. (2abo, 5d) Also reanalysis of published photometry and period confirmation
HDE 258878	(see OW Gem)
BD+60°497	<i>Rauw, G. De Becker, M.</i> 2004, A&A 421, 693. (2ao, 5d)
BD+48°1048	<i>Griffin, R.F.</i> 2004, Observatory 124, 97. (2ao, 5d) Cool component of composite-spectrum system.

X-ray sources with constellation names

Aql X-1	(see V1333 Aql)
Cyg X-1	(see V1357 Cyg)
Cyg X-2	(see V1341 Cyg)
Cyg X-3	(see V1521 Cyg)
Her X-1	(see HZ Her)
Ser X-1	(see MM Ser)
Vela X-1	(see GP Vel)

Object names including RA and DEC

XMMU J001528.9–391319	<i>Stobart, A.-M., Roberts, T.P., Warwick, R.S.</i> 2004, MNRAS 351, 1063. (1x, 5gi, 6b) A black hole candidate.
RX J0048.4–7332	(see SMC X-3)

AX J0049.4–7323	<i>Coe, M.J., Edge, W.R.T.</i> 2004, MNRAS 350, 756. (1aobx, 5b) Neutron star interacting with a circumstellar disc.
4U 0115+63	<i>Mihara, T., Makishima, K., Nagase, F.</i> 2004, ApJ 610, 390. (1x, 2x) Changes in cyclotron resonance structure in ~ 1 year.
SDSS J013701.06–091234.9	<i>Pretorius, M.L. et al.</i> (6 authors) 2004, MNRAS 352, 1056. (1ao, 5abcg) High-speed photometry and orbital modulation.
PSR J0514–4002A	<i>Freire, P.C. et al.</i> (4 authors) 2004, ApJ 606, L53. (1br,2ab,3b) Millisecond pulsar in highly eccentric binary in globular cluster.
2MASS J0516288+260738	<i>Schuh, S. et al.</i> (6 authors) 2004, Astron. Nachr. 325 Suppl. 1/2004, 84. (1ao, 2bd, 5c) Detection and LC analysis of EB with possible brown dwarf component.
RX J0520.5–6932	<i>Edge, W.R.T. et al.</i> (4 authors) 2004, MNRAS 349, 1361.(1abox, 2d, 5bg) A major outburst.
EXO 053109–6609.2	<i>Rea, N. et al.</i> (5 authors) 2004, A&A 421, 235. (1x, 5i) Timing and spectral study of HMXB.
MACHO 053441.3–693139	<i>Bauer, M., Drechsel, H.</i> 2004, Astron. Nachr. 325 Suppl. 1/2004, 93. (1ao, 5c) LC analysis of O-type overcontact EB.
A0535+26	<i>Haigh, N.J., Coe, M.J., Fabregat, J.</i> 2004, MNRAS 350, 1457. (1ai, 2c, 5gi, 8b) Cyclical behaviour and disc truncation.
A0620–00	<i>González Hernández, J.I. et al.</i> (4 authors) 2004, ApJ 609, 988. (2co) Abundances of secondary star.
J0737–3039	<i>Dewi, J. D. M., van den Heuvel, E. P. J.</i> 2004, MNRAS 349, 169. (8ac) Formation history. <i>Granot, J., Meszaros, P.</i> 2004, ApJ 609, L17. (8) Shocked wind in binary pulsar. <i>Jenet, F.A., Ransom, S.M.</i> 2004, Nature 428, 919. (1r) Geometry of double-pulsar from radio flux. <i>McLaughlin, M.A. et al.</i> (10 authors) 2004, ApJ 605, L41. (1bx) No observed variability with phase. <i>Ransom, S.M. et al.</i> (8 authors) 2004, ApJ 609, L71. (1r, 2ar) Clues to formation.
RX J0806.3+1527	<i>Hakala, P., Ramsay, G., Byckling, K.</i> 2004, MNRAS 353, 453. (1ao, 5ab) Distinguishing between competing physical models. <i>Norton, A.J., Haswell, C.A., Wynn, G.A.</i> 2004, A&A 419, 1025. (2dx*) Face-on, stream-fed intermediate polar.
J1118+480	(see KV UMa)
HS 1136+6646	<i>Sing, D.K. et al.</i> (11 authors) 2004, AJ 127, 2936. (1bo, 2ao, 2du, 5b) Pre-CV binary.
PSR B1259–63 (SS 2883)	<i>Kawachi, A. et al.</i> (46 authors) 2004, ApJ 607, 949. (1a) Search for Tev γ -ray emission. <i>Wang, N., Johnson, S., Manchester, R.N.</i> 2004, MNRAS 351, 599. (1r, 5abegk) Results of 13 year of timing observations.
2S 1417–62	<i>Inam, S. C. et al.</i> (5 authors) 2004, MNRAS 349, 173. (1bx, 5dgi) X-ray flux related timing and spectral features.
J151453.6+020934.2	<i>Rykoff, E.S. et al.</i> (15 authors) 2004, IBVS 5559. (1a, 6bd) Discovery of ROTSE3 CV.
4U 1538–52	<i>Clark, G.W.</i> 2004, ApJ 610, 956. (1x, 2x) Grain-scattered x-ray halo studied.

4U 1543–47	<i>Park, S.Q. et al.</i> (11 authors) 2004, ApJ 610, 378. (1x, 2x) Observations during 2002 outburst.
PG 1544+488	<i>Ahmad, A., Jeffery, C.S., Fullerton, A.W.</i> 2004, A&A 418, 275. (2aou, 6d, 7b) He-sdB system.
XTE J1550–564	<i>Rodriguez, J. et al.</i> (5 authors) 2004, ApJ 612, 1018. (1x, 2x) QPO's during 2000 outburst.
MS 1603.6+2600	(see UW CrB)
4U 1608–52	(see QX Nor)
XTE J1650–500	<i>Miniutti, G., Fabian, A.C., Miller, J.M.</i> 2004, MNRAS 351, 466. (1x, 5gh) Evidence for black hole spin and light bending effects.
MXB 1659–29	(see V2134 Oph)
4U 1700–37	(see HD 153919)
XTE J1807–294	<i>Kirsch, M.G.F. et al.</i> (7 authors) 2004, A&A 423, L9. (1x, 5bj)
SAX J1810.8–2609	<i>Jonker, P.G., Wijnands, R., van der Klis, M.</i> 2004, MNRAS 349, 94. (1ax, 5gi, 6c) Detection of new sources and neutron star.
4U 1820–30	<i>Migliari, S. et al.</i> (7 authors) 2004, MNRAS 351, 186. (1rx, 5g) Radio detection in soft x-ray sources. <i>Shaposhnikov, N., Titarchuk, L.</i> 2004, ApJ 606, L57. (1bx) Flux variability during expansion to constrain NS parameters.
PSR J1829+2456	<i>Champion, D.J. et al.</i> (7 authors) 2004, MNRAS 350, L61. (1r, 5ef) A new relativistic binary pulsar.
XTE J1908+094	<i>Gögüş, E. et al.</i> (9 authors) 2004, ApJ 609, 977. (1x, 2x) Long term behaviour. <i>Jonker, P.G. et al.</i> (6 authors) 2004, MNRAS 351, 1359. (1rx, 5gi) A study of disc-jet connection.
RX J1914.4+2456	(see V407 Vul)
GRS 1915+105	(see V1487 Aql)
XB 1916–053	(see V1405 Aql)
SAX J2103.5+4545	<i>Reig, P. et al.</i> (6 authors) 2004, A&A 421, 673. (1aio, 5i, 6c)
XTE J2123–058	<i>Tomsick, J.A. et al.</i> (4 authors) 2004, ApJ 610, 933. (1x, 2x) X-ray transient in quiescent mode.
X2127+119	<i>van Zyl, L. et al.</i> (6 authors) 2004, MNRAS 350, 649. (2cd, 5gh, 8c) Evidence for a very low mass, stripped-giant companion.
PSR J2140–23B	<i>Ransom, S.M. et al.</i> (7 authors) 2004, ApJ 604, 328. (1br) Discovery of 13 ms pulsar in highly eccentric relativistic orbit.
PSR J2140–2310A	<i>Ransom, S.M. et al.</i> (7 authors) 2004, ApJ 604, 328. (1br) Discovery of 11 ms pulsar in four-hour circular orbit.
4U 2206+54	<i>Torrejón, J.M. et al.</i> (5 authors) 2004, A&A 423, 301. (8a) evidence for NS component. <i>Masetti, N. et al.</i> (7 authors) 2004, A&A 423, 311. (1x, 8a)
J221519.8–003257.2	<i>Rykoff, E.S. et al.</i> (15 authors) 2004, IBVS 5559. (1a, 6bd) Discovery of ROTSE3 CV.
HS 2237+8154	<i>Gänsicke, B. T. et al.</i> (7 authors) 2004, A&A 418, 265. (1ao, 2ao, 6d) Pre-CV, CV in period gap, or hibernating nova.
HS 2333+3927	<i>Heber, U. et al.</i> (11 authors) 2004, A&A 420, 251. (1ao, 2ac)

Karl, C.A. et al. (11 authors) 2004, Ap&SS 291, 283. (1ao, 2ac)

Galactic objects with other designations

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- GX 13+1 *Homan, J. et al.* (7 authors) 2004, A&A 418, 255. (2d, 5rx) Simultaneous radio and x-ray observations of LMXB.
Ueda, Y. et al. (5 authors) 2004, ApJ 609, 325. (1x, 2x, 8) ~500 km/s plasma wind detected in LMXB.
- GX 339-4 (see V821 Ara)
- KH 15D *Johnson, J.A., Winn, J.N.* 2004, AJ 127, 2344. (1bo*) Changing light curve of pre-main-sequence ED.
Johnson, J.A. et al. (5 authors) 2004, AJ 128, 1265. (2ao, 5d) Spectroscopic orbit of very young object. Deep eclipses appear to be due to pre-stellar companion.
- LS I +61°303 *Massi, M.* 2004, A&A 422, 267. (5i, 8a)
Mirabel, I.F., Rodrigues, I., & Liu, Q.Z. 2004, A&A 422, L29. (4a)
- Macho 81.8997.87 *Lepischak, D., Welch, D.L., van Kooten, P.B.M.* 2004, ApJ 611, 1100. (1aio, 5e) Eclipsing overtone Cepheid.
- MWC 560 (see V694 Mon)
- Nova in Her 2004, IAU Circ. 8363. (1acd, 2c, 4a, 6b) Unusual CV.
2004, IAU Circ. 8367. (10b)
2004, IAU Circ. 8369. (1a)
2004, IAU Circ. 8374. (1c, 4a)
- SS 2883 (see PSR B1259–63)
- WR 3 *Marchenko, S.V. et al.* (9 authors) 2004, MNRAS 353, 153. (1bo, 2ac, 5bcdegi) Modelling based on spectroscopy and photometry.
- WR 48c *Oliveira, A.S., Steiner, J.E.* 2004, MNRAS 351, 685. (1ao, 2abc, 5abcdegh) Photometric and spectroscopic study. A possible Type Ia supernova progenitor.
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Extragalactic close binaries

- SMC X-1 *Naik, S., Paul, B.* 2004, A&A 418, 655. (2dx) Accretion powered x-ray pulsar.
- SMC X-3 (RX J0048.4–7332) *Cowley, A.P., Schmidtke, P.C.* 2004, AJ 128, 709. (1ao*, 5b) Period determination from MACHO optical photometry.
Kahabka, P. 2004, A&A 416, 57. (2dx*, 1ao) Symbiotic nova.
- Novae in M31 2004, IAU Circ. 8404. (1a, 2b, 4a, 6b) Discovery of two possible novae.
- M81 X-9 *Miller, J.M., Fabian, A.C., Miller, M.C.* 2004, ApJ 607, 931. (1bx) Cool AD, evidence for intermediate-mass BH.

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Ryder, S.D. et al. (6 authors) 2004, MNRAS 349, 1093. (1r, 5c, 8c)
Evidence for a Wolf-Rayet binary progenitor.

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