

A Catalogue of X-ray Sources in the Sky Region between $\delta = -73^\circ$ and $\delta = +27^\circ$

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Abstract: This Catalogue lists coordinates, X-ray fluxes in different energy ranges, magnitudes and colour indices, optical counterparts, orbital periods of binaries, pulsar periods and other characteristics of 226 X-ray sources (HMXBs, LMXBs, pulsars and galaxies) between $\delta = -73^\circ$ and $\delta = +27^\circ$.

Keywords: catalogues — X-ray sources: stars, galaxies — stars: binaries, pulsars

1 Introduction

The Catalogue lists 226 selected X-ray emitting objects with declinations between $-73^\circ \leq \delta \leq +27^\circ$. The information was obtained principally from the technical literature published from 1992 to May 1998. Some recently discovered sources, such as RXTE 1550–56 and RXTE 2123–058, have also been included. The layout of the Catalogue follows the standard format used in Bradt & McClintock (1985) and van Paradijs (1995). However, the coordinates for both B1950 and J2000 have been included, as have the X-ray fluxes in six different energy ranges. This work updates and complements the two catalogues referred to in the declination range considered.

In the Catalogue the sources are ordered according to class (A: LMXBs; B: HMXBs and C: other sources) and right ascension. The numbers in square brackets refer to the publications from which the data were obtained, and additional information is given as key words. The Catalogue classifies 60 high-mass X-ray binaries (HMXBs), 35 of which have a pulsar; 124 low-mass X-ray binaries (LMXBs), 8 of which have a pulsar; 9 binaries, 7 of which have a pulsar; 9 simple pulsars; 7 galaxies; and 1 quasar. There are 16 other sources without classification. Optical counterparts are known for 82 sources and they are also listed. A list of objects in lexicographical order is also given in Table 1.

The Catalogue will be used to select X-ray sources to be observed with the MASCO telescope (Villela et al. 1995) that is being constructed to operate in the range 40 to 5000 keV. The MASCO telescope will be launched by balloon at latitude -23° in Brazil. About one third of the sources emit above 30 keV and are concentrated in the Galactic Centre, the main target of the MASCO telescope.

2 The Catalogue

The Catalogue contents are explained below. The references cited are listed in numerical and alphabetical order at the end. The Catalogue is available electronically from the electronic version of *Publications of the Astronomical Society of Australia* at http://www.atnf.csiro.au/pasa/16_2/meliani/.

First column: The source name related with its sky location in epoch 1950 (B) and/or 2000 (J). The conventional format is hhmm±ddd, where hh and mm indicate the hour and minute of right ascension and ddd indicates the declination. If there is an alternative name, it is also given. The sources that emit above 30 keV are distinguished.

Second column: The first line gives the type of source:

LMXB: low-mass X-ray binary
HMXB: high-mass X-ray binary
Binary: binaries sources without classification
Pulsar
QSO: quasar
AGN: active galactic nuclei.

The second line gives:

(a) if the source is in a binary system;

A: atoll source
B: X-ray burst source
D: ‘dipping’ LMXBs
G: globular cluster X-ray source
P: X-ray pulsar
T: transient X-ray source
U: ultra-soft X-ray spectrum
Z: Z-type.

(b) if the source is a pulsar;

SNR: associated with a supernova remnant.

The third line gives the type of observation and source position error:

Table 1. List of objects in lexicographical order

3C273	B1226+023	NGC 6712	B1850-087
AV 111	B0050.1-7247	NGC 7582	B2315-426
BR Cir	B1516-569	NP 0531	B0531+219
BW Cir	B1354-645	QV Nor	B1538-522
UW CrB	B1603+260	S84	B0726-260
BP Cru≡Wra 977	B1223-624	SK 160	B0115-737
μ^2 Cru≡HD 112091	B1255-567	MM Ser	B1837+049
GR Mus	B1254-690	NP Ser	B1813-140
HD 63666≡SAO 235515	B0739-529	SK-Ph	B0532-664
HD 65663≡SAO 250018	B0749-600	Ter 2	B1734-307
HD 77581≡GP Vel	B0900-403	Ter 5	B1745-248
HD 110432≡SAO 252002	B1249-637	Ter 6	B1747-313
HD 141926≡SAO 243098	B1555-552	KY TrA	B1524-617
HD 153919≡V884 Sco	B1700-377	KZ TrA	B1627-673
HD 154791	B1704+240	LU TrA	B1556-605
HD 161103	J1744.7-2713	V1333 Aql	B1908+005
He3-640	B1118-615	V1343 Aql≡SS 433	B1909+048
Hen715≡V801Cen	B1145-619	V1405 Aql	B1916-053
HV 2554	J0528-6954	V1408 Aql	B1957+115
HV 5682	B0513.9-695	V801 Ara	B1636-536
Kes 73	J1841-045	V821 Ara	B1659-487
Lil 1	B1730-335	V395 Car	B0921-630
LS 992	J0812.4-3114	V779 Cen	B1119-603
LS 1698	B1036-565	V822 Cen	B1455-314
LS 5039	J1826.2-1450	V830 Cen	B1145.1-6141
M15≡AC211	B1227+119	V850 Cen	B1258-613
M28	B1821-24	V691 CrA	B1822-371
MCG-5-23-16	B0945-397	V616 Mon	B0620-003
MMVel	B1009-45	V2107 Oph	B1705-250
MSH 15-32≡G320.4-1.2	B1509-58	V2116Oph	B1729-247
N67	B0056.8-7164	V2134 Oph	B1658-298
NCL 101	B1811-171	V2216 Oph	B1728-169
NGC 1068	B0240-001	V2293 Oph	B1716-249
NGC 1851	B0512-401	V1055 Ori	B0614+091
NGC 4507	B1232-396	V4134 Sgr	B1755-338
NGC 4945	B1304-497	V818 Sco	B1617-155
NGC 5128	B1322-427	V926 Sco	B1735-444
NGC 6440	B1745-203	V725 Tau	B0535+262
NGC 6441 (star U1)	B1746-370	UY Vol	B0748-676
NGC 6624	B1820-303	QZ Vul	B2000+251
NGC 6652	B1832-330	Wack 2134≡TH α 35-42	B1024-5732

o: optical

x: X-ray

i: infrared

r: radio.

Third column: The first and second lines give right ascension (RA) and declination (DEC) in epoch 1950. The third line gives the galactic longitude and latitude.

Fourth column: The first and second lines give the right ascension (RA) and declination (DEC) in epoch 2000.

Fifth column: The optical counterpart, if known, and associations.

Sixth column: The magnitude and colour indices of the optical counterpart;

first line: V

second line: B-V

third line: U-B.

Seventh column:

first line: spectral type of optical counterpart

second line: interstellar reddening, E_{B-V} .

Eighth column: Gives the X-ray fluxes F_x in units of 10^{-5} photons $\text{cm}^{-2} \text{s}^{-1} \text{keV}^{-1}$ in the ranges:

first line: 2-10 keV (or 0.1-2.4 keV for those sources indicated by an asterisk).

second line: 40-80 keV (or 10-40 keV for those sources indicated by an asterisk).

third line: 80-180 keV.

Ninth column: Gives the X-ray fluxes F_x in units of 10^{-5} photons $\text{cm}^{-2} \text{s}^{-1} \text{keV}^{-1}$ in the ranges:

first line: 200-600 keV

second line: 600-1000 keV

third line: above 1000 keV.

The notation $nnEm$ stands for $nn \times 10^m$.

Tenth column:

first line: orbital period in days (d) or hours (h)

second line: pulsar period in seconds (s) or milliseconds (ms)

third line: the X-ray catalogues and experiments in which the source was listed and/or detected:

A: Ariel V sky survey (McHardy et al. 1981; Warwick et al. 1981)
 H: HEAO A-4 sky survey (Levine et al. 1984)
 M: MIT OSO-7 sky survey (Markert et al. 1979)
 U: Uhuru sky survey (Forman et al. 1978)
 X: Catalogue of X-ray binaries (van Paradijs 1995).

As: ASCA
 B: Beppo Sax
 Bb: Broad Band X-ray Telescope (BBXRT)
 C: Compton γ -ray Observatory (Batse, GRO)
 Cb: Cos B
 E: Einstein
 Eg: Egret
 Exo: Exosat
 FII: Figaro II (X- and γ -ray)
 G: Ginga
 Gr: Granat
 Ha: Hakucho
 K: Kvant
 OAO: Orbiting Astronomical Observatory
 P: Prognosz 9
 R: ROSAT
 Rx: Rossi X-ray Timing Explorer (RXTE)
 S: SAS 3
 S2: SAS2
 SL: Space Lab
 T: Tenma
 V: Vela-5 and Vela-6 satellites

The symbol (:) that follows some values indicates imprecise data.

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The Catalogue

(A) LMXBs: Low-Mass X-ray Binaries

Source (J) (B) Name	Type of source characteristic Position	RA DEC l ^h , b ^m	RA (2000) DEC	Optical count.	V B-V U-B	spectral type E _{B-V}	2 - 10 keV 40 - 80 keV 80 - 120 keV * 6	100 - 200 keV 200 - 600 keV > 1000 keV	P _{vertical} P _{pulsar} catalogues
B0056.8-7164	LMXB? U o	00 56 53.64 -71 52 03.3 302.1, -45.5	00 58 36.9 -71 35 53	N67?					E
X-ray obs.: spectrum, light curve [84]									
B0512-401	LMXB G B x 2"	05 12 27.9 -40 06 00 244.5, -35.0	05 14 06.6 -40 02 37	A star [161] NGC 1851	21 B -0.9	0.1	150		X,U,M,A,H
optical and UV obs.: photometry, image, counterpart [161]									
B0513.9-6951	LMXB? BT	05 14 15.9 -69 55 07 280.8, -33.7	05 13 50.8 -69 51 47	HV 5682 LMC	16.5 -0.14	0.1	* <10		0.76 d R
X-ray obs.: supersoft source, spectrum, light curve [490]; optical obs.: photometry, spectroscopy, radial vel. [146], image and spectrum [143]; UV / opt. obs.: photometry, spectroscopy, light curve [432]; accretion models [316][106]									
B0521-720	LMXB	05 21 18.0 -72 00 26	05 20 29.3 -71 57 36	*22	18-19 0.0	0.1	225-1100		12.543 d [467]
LMC X-2	o 3"	283.1, 32.7			-0.8				X,U,M,A,H
J0528-6954	LMXB x 30"	05 28 15.9 -69 23 34 278.6, -31.3	05 27 53.8 -69 21 15	HV 2554? LMC	15.8	0.1	2.5		X,R
Optical obs.: image, counterpart? [143]									
J0537.7-7034	LMXB?	05 38 16.1 -70 05 20 280.6, -31.6	05 37 46.3 -70 3 44	star 1 [420] LMC	19.66 -0.03 -0.69		*1.0E3		
X-ray obs.: spectrum [421]; optical obs.: spectrum, photometry, light curve, counterpart, image [420]									
B0543-682	LMXB	05 43 48.0 -68 23 34 -278.6, -31.3	05 43 33.5 -68 22 23	*V [145] LMC	16.2-17.3 0.0	0.1	25		24.96 h X,E,Bp
CAL 83	o				-1.0				
X-ray obs.: spectra, BH? [84], LECs obs [438], accretion, white dwarf [276]; optical obs.: spectrum, image [143]; accretion models [316][572]									
B0547-711	LMXB	05 47 26.8 -71 09 50 281.8, -30.7	05 46 45 -71 08 54	*X [431] LMC	18.8-20 0.0	0.1	5		10.62 h X,E,Bp
CAL 87	x 10"				-0.7				
X-ray obs.: spectrum, BH? [84][437], X-ray spectrum and optical image [143]; accretion models [316] 547]; see too [491]									
B0614+091	LMXB B?p?A?	06 14 22.8 +09 09 22 200.9, -3.4	06 17 07.3 +09 08 13	V1055 Ori	18.5 0.3 -0.5	0.3	1250 1.84		4.898 d [467] 3.1 ms? [187] X,U,M,A,H,S,Rx,Exo,C
X-ray obs.: spectra [185], light curve & spectra [513], hard and soft spectrum (anticorrelation) [186], QPO, millisecond radio pulsar [187]; QPO, atoll source [383]; bursts [41][82]; see too [113]									
B0620-003	LMXB	06 20 11.1 -00 19 11	06 22 44.4 -00 20 45	V616 Mon	11.2 0.2 -0.8	K4/5 0.4	05-1.25E6		7.75 h X,A,S,R
N Mon 1975	T U o	210.0, -6.5							
UV obs.: BH? [379][608]; infrared photometry: masses of sistem [501]; orbital par.: masses, inclination, period, spectral type [467]									
B0656-072	LMXB T	06 56 01 -07 11.7	06 58 26.5 -07 15 50				500 - 2.0E3		

x 3'		220.2,-1.7		X,A			
Source (J) (B)	Type of source characteristic Position	RA (1950) DEC l ^h , b ^m	RA (2000) DEC	Optical count. V B-V U-B	spectral type E _{B-V}	2 - 10 keV 40 - 80 keV 80 - 120 keV 100 - 200 keV 200 - 600 keV > 1000 keV	P _{orbital} P _{pulsar} catalogues
B0748-676	LMXB TBD o	07 48 25.0 -67 37 32 280.0,-19.3	07 48 33.8 -67 45 09	UY Vol	16.8 [467]	2.5 - 1.5E3	0.1593 d [250]
X-ray obs.: spectrum [556], light curve, eclipse, period [250], dipping and accretion [517], orbital period evolution (dP/dt= 3.3 10 ⁻¹¹) [251]							
B0846-429	LMXB TB x 1'	08 35 37 -42 42.6 261.9,-1.1	08 37 22.7 -42 53 08			25 - 1375	X,U,M
Optical obs.: spectra, masses [580]							
B0918-549	LMXB x 5"	09 18 54.7 -54 59 37 275.9,-3.8	09 20 26.8 -55 12 24	*X [121]	21.0 0.3 -0.9	250 1.38	X,U,M,A,H,S
B0921-630	LMXB D o	09 21 25.1 -63 04 48 281.8,-9.3	09 22 34.7 -63 17 41	V395 Car	15.3 0.6 -0.5	75 0.2	216.2 h or 13.25 d [467]
B1009-45	LMXB?	10 09 -44 55 275.5,+9.0	10 11 -45 10	MM Vel	14.71 0.13	10 ³ 20 3	4.8 h or 6.86 h ?
XN Vel 1993 X-ray obs.: spectrum [202], broad band spectrum [281], light curves [319]; optical obs.: counterpart, photometry, spectroscopy [156]; optical obs.: spectrum, light curves [371]; optical obs.: image, spectroscopy, light curve, period 6.86 h, BH [504]; mini outbursts [31]; see too [467]							
B1124-684	LMXB TU o	11 24 18.5 -68 24 02 295.0,-6.1	11 26 26.6 -68 40 33		13.6 0.3	100 - 7.5E4	10.4 h
N Mus '91	X-ray obs.: high and low state, discovered [288][83], hard spectrum, image [200], spectra, annihilation line (511 keV)[199], see too [357][212][168][404][318][211]; BH? [326]; optical obs.: B, V, R, and spectrum [157]; ultraviolet obs.(IUE): light curves [512]; infrared obs.: parameters [10]; radio obs.: [34]; accreting [612]; orbital par.: masses, inclination [467]; see too [257]						X,Gr,G
B1254-690	LMXB BD o	12 54 21.0 -69 01 08 303.5,-6.4	12 57 37.2 -69 17 21	GR Mus	19.1 0.3	625 0.35	3.93 h
See [467]							
B1323-619	LMXB BD x 3"	13 23 16.8 -61 52 36 307.1,+02	13 26 36 -62 08 10		-0.5	175	2.93 h
See [467]							
B1354-645	LMXB TU o	13 54 27.5 -64 29 29 310.0,-2.8	13 58 09.6 -64 44 05	BW Cir	16.9 1.1 -0.1	125 - 3.0E3 2.1 1.3 [245]	1.92: d [467]
Cen X-2 X-ray observation: outburst, BH? [245]; radio counterpart [175]; outburst optical and X-ray [97][242]							
B1455-314	LMXB TB o	14 55 19.6 -31 28 09 332.2,+23.9	14 58 21.9 -31 40 07	V822 Cen	18.7 [503]	2.5 - 5E5 0.1 < 70	15.10 h
Cen X-4 X-ray obs.: hard spectrum, pulse P _x = 8.15 h [307]; ultra-soft X-ray spectrum [21], variability [90]; broad band optical spectra [503]; orbital par.: masses, inc. [467]							
B1516-569	LMXB TB r	15 16 48.4 -56 59 12 322.1,+0.0	15 20 40.8 -57 10 00	BR Cir	21.4	25 - 7.5E4	398.4 h
X-ray obs.: spectral evolution, QPO [51]; optical and infrared obs.: images, photometry [406]; optical obs.: spectra (H α) [392]; radio obs.: outbursts [194]							
LMXB		15 24 05.8	15 28 27.1	KY Tra	B=17.5	<125 - 2.4E4	X,U,M,A,H,S,Rx

B1524-617	TU	-61 42 35	-61 52 58	*N	0.7	< 2.8	X, A, S, R, Gr
TrA X-1	0 3"	320.3, -4.4				< 2.2 [36]	
X-ray obs.: spectrum, light curve [44], hard spectrum, image [36]							
Source (J) (B)	Type of source characteristic Position	RA (1950) DEC l ^h , b ^m	RA (2000) DEC	Optical count. B-V U-B	spectral type E _{B-V}	2 - 10 keV 40 - 80 keV 80 - 120 keV	P _{orbital} P _{pulsar} catalogues
B1543-624	LMXB	15 43 34.1 -62 24 51 321.8, -6.3	15 47 54.7 -62 34 05	*6 [13] B>20	0.5	875	X, U, M, A, H, S, R
X-ray obs.: spectra [514]							
B1543-475	LMXB TU o	15 43 33.9 -47 30 54 330.9, +5.4	15 47 08.5 -47 40 10	14.9 0.6	0.7	<25 - 3.75E5	X, U, M, T, R
B1556-605	LMXB o	15 56 45.8 -60 35 52 324.1, -5.9	16 01 02.2 -60 44 17	18.6-19 0.45 -0.7	0.6	400	9.1 h: [467] X, U, M, A, H, S
B1603+260	LMXB o	16 03 40.5 +25 59 48 42.8, +46.8	16 05 45.8 +25 51 45	19.7	<0.1	3.75	1.85 h X, E
Theory: evolutionary models [171]; see too [467]							
B1608-522	LMXB TBA o	16 08 52.2 -52 17 43 330.9, -0.9	16 12 42.9 -52 25 23	star [582] 18.9K, 17.8	20.07 [123] 1.5	<25 - 2750 150 5	4.10 - 5.19 d ? X, U, M, H, S, C, G, R, X
X-ray: light curve, image, hard spectrum [605], see too [600], broad band X-ray spectrum [40], soft X-ray spectrum [21], QPO [602][38][161]; outbursts, period? [339]; optical and IR obs.: counterpart (R=20.2) [613]; see too [467]							
B1617-155	LMXB Z	16 17 04.5 -15 31 15	16 19 35.1 -15 38 25	V818 Sco	12.2 0.2	3.5E5 4.83	18.9 h X, U, M, A, H, Exo, Pk, R, X
Sco X-1	o	359.1, +23.8		-0.8	0.15 [503]	<0.1	X, U, M, A, H, S, Gr, C, As, B p, Exo, R, X
X-ray obs.: QPO (separation no const.) [581], QPO [290], see too [292]; X-ray and optical obs.: [26]; broad band optical spectrum, E _{B-V} [503]; multiwavelength obs. [249]; radio obs.: light curves, periodic variability [81]; QPO [489]; radio obs.: parallax [80]; see too [545][566][467]							
B1624-490	LMXB D x 12"	16 24 17.8 -49 04 46 334.9, -0.3	16 28 02.4 -49 11 25		-7;	1375 3.91	21 h [467] X, U, M, A, H, S
B1627-673	LMXB P o	16 27 14.7 -67 21 18 321.8, -13.1	16 32 16.7 -67 27 43	KZ TrA	18.68 0.02 [99] -1.2	625 - 5.0E3 2.3	0.69 h 7.7 s X, U, M, A, H, S, Gr, C, As, B p, Exo, R, X
X-ray obs.: spectrum, light curve [429][341], light curve & pulsation period evolution [345], QPO [295], spin down, pulse profiles, pulse phase [102], Batse obs. review [65], see too [377]; optical obs.: photometry, QPO optical [99]; orbital parameters [340]; spin change [344]; neon live emission [9]; see too [467]							
B1630-472	LMXB TU x 10"	16 30 19.4 -47 17 24 336.9, +0.3	16 34 00.4 -47 23 39		4.5;	<50 - 3.5E4 14 [163]	X, U, M, A, R, H, E, Exo, G, As, R, X
X-ray: spectrum [439], light curve, image [68], very high state [163], dip, light curves, spectrum [559][315]; outburst, BH? [434][309]; see too [314]							
B1632-477	LMXB x 1.1'	16 32 46 -47 43 32 336.9, -0.4	16 36 28.3 -47 49 37			325	X, K

B1636-536	LMXB BA 0	16 36 56.4 -53 39 18 332.9,-4.8	16 40 55.5 -53 45 05	V801 Ara *3 [582]	17.5 0.7 -0.7	0.8	5.5E3 2.76	3.80 h	X,U,M,A,H,S,Exo,Rx
Soft X-ray: variability, spectral properties [456]; optical obs.: spectroscopy, photometry [28]; QPO [610][624][621]; masse M1 [467]; see too [155]									
Source (J) (B) Name	Type of source characteristic Position	RA (1950) DEC J ^h , b ^m	RA (2000) DEC	Optical count.	V B-V U-B	spectral type E _{B-V}	2 - 10 keV 40 - 80 keV 80 - 120 keV 100 - 200 keV 200 - 600 keV > 1000 keV	P _{orbital} P _{pulsar} catalogues	
B1642-455 GX 340+0 i	LMXB Z i	16 42 09.5 -45 31 13 339.6,-0.1	16 45 47.7 -45 36 39			12:	1.25E4		X,U,M,A,H,S,Exo
X-ray obs.: power spectrum, CD[310]; infrared obs.: counterpart [396]									
J1655-40 RX N Sco 1994	LMXB?	16 51 32.6 -39 55 13.3 345.0,+2.2	16 55 00 -40 00 00	star [33]	14.45 -0.1	1.15	1.0E3 200 10 - 40 [33]	1-4 1 [33]	2.6 d R,C
X-ray observations [216]: spectrum [147][305] see too [606], absorption line [570], variability [147], dips [315]; optical obs.: photometry and spectroscopy, massas sistem [425], see too [427], V R J photometry (pre-outbursts V=17.3) [576], radial velocity, BH [528], polarization [488]; multiwavelength observations [553]; theoretical model: radio jets and accretion [380]; evolutionary state [294]; BH? [32][575]; see too [219][239][467]									
B1658-298	LMXB TBD 0	16 58 55.4 -29 52 28 353.8,+7.3	17 02 06.3 -29 56 45	V2134 Oph *T [582]	18.3 0.45 -0.4	0.3	<125 - 2000 3.68	7.11 h	X,A,H
Optical obs.: broad band spectrum [503], light curve [615]; see too [467]									
B1659-487 GX339-4	LMXB TU 0	16 59 02.0 -48 43 07 338.9,-4.3	17 02 49.4 -48 47 22	V821 Ara *V [582]	15.5 0.8 -0.1	1.1	37.5 - 2.25E4 8.97 4.5	14.83 h	X,U,M,A,H,Et,C
X-ray: spectrum [78][382][212][141][213], image [40], spectra in low-intensity state [569], outbursts, light curves, history [475]; optical obs.: QPO [533], photometry, period [87], spectroscopy [86]; radio observations [174]; BH [326]; see too [588][467]									
B1702-429	LMXB BA x 5"	17 02 41.0 -42 58 0.9 343.9,-1.3	17 06 15.2 -43 02 09			2.5:	1125		X,U,M,S
B1702-363 GX 349+2 Sco X-2 r	LMXB Z r	17 02 22.9 -36 21 20 349.1,+2.7	17 05 44.4 -36 25 22	*6 [582]	18.6 1.5	1.3:	2.1E4	14.9 d or 22.3 h [49]	X,U,M,A,H,S,Rx
X-ray obs.: spectra, Z source, accretion [311]; optical photometry: light curves, period (22.3h and 14.9 d) [49], see too [614][467]									
B1704+240	LMXB 0	17 04 29.7 +24 02 14 45.2,+33.0	17 06 34.5 +23 58 18	HD 154791	7.8 1.3 2.1	0.3	<12.5 - 275		X,A,H
B1705-440	LMXB BA x 13"	17 05 17.9 -44 02 13 343.8,-2.3	17 08 54.6 -44 06 02			2:	250 - 7000 9.43	0.0544 d [467]	U,C,Exo
X-ray: light curve, image [69]									
B1705-250 N Oph 1977	LMXB T 0 2"	17 05 10.4 -25 01 38 358.6,+9.1	17 08 14.5 -25 05 19	V2107 Oph	15.9 0.6	0.5	<50 - 9.0E4 5.76 5.55	0.70d [503] or 0.521d [173]	X,A,H,R
Optical observation: spectra, radial veloc., mass function, BH? [176], broad band spectrum [503]; orbital parameters: masses, incl. [467]; see too [591]									
B1708-408	LMXB	17 08 53 -40 47 02	17 12 23.1 -40 50 36				800		

		x 1'		346.3,-0.9	17 14 19.2	400 - 3250	X,U,M,H
B1711-339		LMXB		17 11 01.3 -33 59 32 352.1,+2.7	-34 02 57		
		x 40"					
B1715-321		LMXB		17 15 32.3 -32 07 34 354.1,+3.1	17 18 47.3 -32 10 40	700	X,H,S
		x 23"					

x 8"		357.6,+0.9		X,Ha,R,Gr,H									
X-ray: hard spectrum, light curve, localization [77], soft spectrum [445], image [447]; radio obs.: counterpart [368]													
B1732-273	LMXB	17 32 54	17 36 02.2	<125 - 1250									
x 1'	TU	-27 23 42	-27 25 33										
	x 1'	0.16,+2.59	X,K,G										
B1735-269	LMXB	17 35 08	17 38 15.6	250 - 1500									
	x 2'	-26 58 34 0.78,+2.40	-27 00 16	3.1 0.4									
X-ray observations: spectrum, light curve, image [205] [447] [154]; burst: neutron star? [54]; see too [203]													
Source (J) (B)	Type of source characteristic	RA (1950) DEC	RA (2000) DEC	Optical count.	V B-V U-B	spectral type E _{B-V}	2 - 10 keV 40 - 80 keV 80 - 120 keV	100 - 200 keV 200 - 600 keV > 1000 keV	P _{orbital} P _{pulsar} catalogues				
Name	Position l ^a , b ^l								4.65 h				
B1735-444	LMXB	17 35 19.3 BA	17 38 58.2 -44 27 00	V926 Sco *5 [582]	17.5 0.2 -0.8	0.15	4000						
o		346.1,-7.0											
		X-ray observations: light curve, spectrum, burst [498]; optical observation: spectroscopy, photometry [28], nonthermal flares [48]; see too [63][467]											
B1735-28	LMXB	17 35.4	17 35 33.8				<1 - 1.4E4						
GX359-2 ?	T x 7'	-28.45 359.57,+1.56	-28 28 40				4.37			X,U,M			
B1736-297	LMXB	17 36 21	17 39 32.7				50 - 440						
x 1'		-29 41 50 358.63,+0.71	-29 43 26							X, Gr			
X-ray: spectrum, image [447][446]													
B1737-282	LMXB	17 37 47	17 40 56.5				75 - 670						
x 3'		-28 17 06 0.01,+1.17	-28 18 36							X,SL,Gr			
X-ray image [447]													
B1737-312	LMXB ? T	17 37 10 -30 58 27 357.6,-0.1	17 40 24 -31 00 00				1.0E3 21 3.2 - 6.3			Gr,Rx,B,As			
X-ray: hard spectrum, light curve, BH? [149] [547], spectrum, image [446]													
B1739-278	LMXB ? T x 4"	17 39 31 -27 45 52 0.6,+1.2	17 42 40.3 -27 44 54	Central star [367]	23.2		500 12 5	1.0 0.5		Gr,R,Rx			
X-ray observations: light curve, image, spectrum [586]; optical observations: counterpart, R=20.5,J=16.0,K=14.7 [401]; BH?, radial profile [217]; optical and infrared obs.: counterpart α = 17:42:40.06, δ = -27:44:53.2 (2000), 20.5R, 18.3I, 16.3J, K,H (photometry) [367]													
B1739-304	LMXB	17 39 31	17 42 43.9				225						
x 1.6'		-30 29 29 358.33,-0.29	-30 30 51							X,K,Gr			
X-ray image [447]													
B1741-292	LMXB	17 40.6	17 43 47.3				750						
GC X-4	T? x 1.2'	-29 25 359.36,+0.08	-29 26 18							X			
B1740.7-2942	LMXB	17 40 42.9	17 43 54.7				100 - 750 11 - 50 4 - 20	0.8 0.1		X,E,Gr,C,R,Rx			
x 12"		-29 43 26 359.12,-0.11	-29 44 43										
X-ray: spectrum, light curve, image [210][531], position [244], variability [56], see too [523][139][200][353][109][447][308][212]; source 511 keV? [347][554][524][275][403][399][458]; BH? [326] [89]; optical obs.: image band I [389][329], infrared obs. [230]; radio obs.: counterpart? [208], jets [138][462]; see too [597][203]													
LMXB		17 41 14.7	17 44 25.4				<37.5 - 7.5E3						

B1741.2-2959	x 1'	-28 59 30 359.80,+0.18	-29 00 45						X,G
B17 41-293	LMXB	17 41 38	17 44 49.2					<125 - 650	
MXB1743-29	TB	-29 19 53	-29 21 06						X,K,Gr
X-ray image [447]	x 1'	359.55,-0.07							
B1741-322	LMXB	17 41 46	17 45 01.7					<50 - 1.9E4	
	TU	-32 12 25	-32 13 38					13.34	
	x 20"	357.1,-1.6						3.30	X,H
Source (J)	Type of source	RA (1950)	RA (2000)	Optical count.	V	spectral type	2 - 10 keV	100 - 200 keV	Partial
(B)	characteristic	DEC	DEC		B-V	E _{B-V}	40 - 80 keV	200 - 600 keV	P _{pulsar}
Name	Position	l ^{II} , b ^{II}			U-B		80 - 120 keV	> 1000 keV	catalogues
B1741.9-2853	LMXB	17 41 52	17 45 02.5				175 - 620		
	T	-28 52 55	-28 54 07						X,Gr
X-ray obs.: image [447], emission [455]	x 1.6'	359.96,+0.13							
B1742-326	LMXB	17 42 12	17 45 28.5				<50 - 75		
	x 9'	-32 40 28	-32 41 39						X,Exo
		356.8,-1.9							
B1742.2-2857	LMXB	17 42 15.9	17 45 26.5				2.5		
	x 1'	-28 57 49	-28 58 59						X,E
		-359.94,+0.01							
B1742-292	LMXB	17 42 26	17 45 37.3				1125		
GC X-2	T?	-29 26	-29 27 10						X
	x 3'	359.56,-0.26							
B1742-289	LMXB	17 42 26.3	17 45 37				<225 - 5.0E4		0.3482 d
	TB?	-28 59 57	-29 01 07						X,A,As
	r 3"	359.93,-0.00							
X-ray obs.: light curve, spectra [349]; optical obs.: period [286]; see too [467]									
B1742.5-2859	LMXB	17 42 30.0	17 45 40.7				25 - 800		
Sgr A	x 1'	-28 59 01	-29 00 10						X,E,Gr
		359.95,-0.05							
X-ray: spectrum, image [447][384]; radio obs.: VLBI [79]; infrared obs.: counterpart [536]; interferometric measurements [499]; theory: accretion [172]; see too [98]									
B1742.5-2845	LMXB	17 42 32.5	17 45 42.8				2.5		
	x 1'	-28 45 44	-28 46 53						X,E
		0.14,+0.06							
B1742-294	LMXB	17 42 54.7	17 46 06.2				1.5E3 - 4.5E3	0.35	
B?		-29 29 58	-29 31 06				1.4 - 23.92		
GC X-1	x 1'	359.56,-0.39					0.3 - 4.65		X,A,Gr
X-ray obs.: hard spectrum, image, light curve [447][114]; neutron star? [326]; see too [203]									
B1742.9-2849	LMXB	17 42 59.2	17 46 09.6				5		
	x 1'	-28 49 57	-28 51 04						X,E
		0.13,-0.06							
X-ray obs.: emission [455]									
B1743-290	LMXB	17 43 10.1	17 46 20.8				5.0		
		-29 02 22	-29 03 28.6				1.8		
	x 5'	360.0,-0.2					0.1 [203]		X,E,Gr, R
X-ray obs.: position, emission [203], candidates counterpart [42]; four sources in the error box: 1742.7-2902, 1742.8-2853, 1742.9-2852, 1743.1-2852 [582]									

B1743.1-2843	LMXB x 1'	17 43 08.9 -28 43 00 0.25,-0.03	17 46 19.2 -28 44 07	12.5 - 1700	X.E.G
X-ray: image, spectrum [447]					
B1743-288	LMXB T	17 43.9 -28 52.6	17 47 04.5 -28 53 39	<25 - 1000	X.A
GX+0.2,-0.2	x 2'	0.21,-0.25			11.8 d 0.467 s [65] C,Rx,R
J1744-28	LMXB BPT	17 41 22.8 -28 43 14.6 0.04,+0.3	17 44 33.1 -28 44 29	* [35 [179] < 15	
X-ray: spectrum [538], pulsations ($P_{\text{sc}}=467$ s) [178], see too [299], QPOs, bursts, spectra [197], theory [332][395], optical obs.: IR and opt. [134][133], light curves, image and bursts [541][15][16], counterpart g and r bands? [134], burst [301][296][93][332][544][92][197], QPO [611], see too [292]; Glitches [530]; spin up, accretion [66][93]; accretion: outbursts [92]; infrared counterpart? [300][27]; masses, evolutionary history [461]; accretion: 'propeller effects?' [148]; see too [346][467]					
Source (J) (B)	Type of source characteristic Position	RA (1950) DEC $\mu^{\text{h}}, \text{b}^{\text{m}}$	RA (2000) DEC	Optical count. V B-V U-B	spectral type $E_{\text{B-V}}$ 2 - 10 keV 40 - 80 keV 80 - 120 keV 100 - 200 keV 200 - 600 keV > 1000 keV P_{orbital} P_{pulsar} catalogues
Name					
B1744-299	LMXB x 1'	17 44 13.4 -29 58 41 359.30,-0.49	17 47 25.6 -29 59 43	>7.5;	X.SL,Gr
X-ray: image, spectrum, light curve [447]					
B1744-300	LMXB B	17 44 13.6 -30 01 29 359.26,-0.91	17 47 25.9 -30 02 31	100 - 3000 >7.5;	X.SL,Gr
X-ray obs.: image, spectrum, light curve [447]					
B1744-265 GX3+1	LMXB BA x 3"	17 44 48.9 -26 32 49 2.3,+0.8	17 47 25.9 -30 02 31	1.0E4 3.68	X,U,M,A,H,S,Gr,G
X-ray obs.: image [447], flux variations, bursts [23]					
B1744-361	LMXB? T x 40"	17 44 50.9 -36 06 54 354.1,-4.2	17 48 13.3 -36 07 53	<625 - 6.9E3	X.A
B1745-248	LMXB GB x 9'	17 45 51 -24 52 45 3.8,+1.5	17 48 55.7 -24 53 40	<2.5 - 2750 2.1	X.Ha,Exo
B1745-203	LMXB GT x 1'	17 45 55.0 -20 21 07 7.7,+3.8	17 48 53.5 -20 22 02	<2.5 - 4500 2.07	X,U,M,H
B1746-7-3224	LMXB x 1'	17 46 47.3 -32 24 52 357.5,-2.6	17 50 03.4 -32 25 43	2.5	X.E
B1746-331	LMXB U x 35"	17 46 33.2 -33 11 03 356.7,-3.1	17 49 50.6 -33 11 55	675	X.SL 5.7 h
B1746-370	LMXB GB x 2"	17 46 48.5 -37 02 18 353.5,-5.0	17 50 12.6 -37 03 08	800 0.50	X,U,M,A,H,S
Optical obs.: counterpart, image, photometry (18.1B) [162], star U1 (2000): $\alpha=17:50:12.6$, $\delta=-37:03:06.5$; see too [467]					
B1747-214	LMXB TB x 7"	17 47 25.7 -21 24 33 19.8,+22.7	17 50 25.6 -21 25 21	1750	X.Exo

B1747-313	LMXB G x 1'	17 47 31.2 -31 16 45 358.6,-2.2	17 50 45.5 -31 17 32	Ter 6	37.5 - 500	2.24 [35]	X,R,Gr
Optical observation: photometry of globular cluster, CMDs, distance [35]							
B1749-285	LMXB T GX +1.1,-1.0	17 49 06 -28 29 41 1.1,-1.0	17 52 16 -28 30 22		1500		X
B1755-338	LMXB DU O	17 55 21.5 -33 48 14 357.2,-4.9	17 58 40 -33 48 27	V4134 Sgr	18.5 0.7	0.5:	4.46 h X,U,M,A,H,S,K,R,Gr,P
X-ray obs.: images [436], dips, spectra in low state [579]; optical obs.: light curve [615]; see too [115][467]							
B1758-250	LMXB Z x 3"	17 58 03.1 -25 04 43 5.1,-1.0	18 01 08.1 -25 05 45		3.1E4 11.73 2.55	7.5:	X,U,M,A,H,S,K,Gr
X-ray obs.: Cds, spectrum [312], emission of halo [454], see too [545][531][22][67]; radio obs.: Cds, relations X-ray and radio [551]; QPO [589][331]							
Source (J)	Type of source	RA (1950)	DEC	Optical count.	V	spectral type	P _{orbital}
(B)	characteristic	DEC	DEC	B-V	B-V	E _{B-V}	P _{pulsar}
Name	Position	l ^h , b ^m	U-B				catalogues
B1758-258	LMXB r 2"	17 58 06.7 -25 44 25 4.5,-1.4	17 01 13 -25 44 27		500 92 - 100 2.3 - 50	3:	0.4 0.1 X,Gr,K,Rx,As
X-ray obs.: spectrum, BH? [531][198][357][326][523], light curves [109][198], image, spectrum [390]; optical obs.: image [band [389]; radio obs.: counterpart [472]; see too [212][386][203]							
B1758-205	LMXB A x 3"	17 58 33.5 -20 31 44 9.1,+1.2	18 01 32.2 -20 31 44		1.7E4	3.7:	X,U,M,A,H,S
B1803-245	LMXB? T x 10"	18 03 45.8 -24 35 38 6.1,-1.9	18 06 50.1 -24 35 15		<50 - 2.5E4		X,S
J1808.4-3656	LMXB TB	10 05 02 -35 56 29 356.3,-7.6	18 08 24 -35 56		2600		2 h [105] 2.49 ms [623] Bp,Rx
X-ray obs.: identification, spectrum, distance (4Kpc) [260], millisecond pulsar ? [623], parameters: orbital period [105]							
B1811-171	LMXB BA GX13+1	18 11 36.7 -17 10 23 13.5,+0.1	18 14 31 -17 09 26	NCL 101	11K	K2/3 5.7	25 d: [467] X,U,M,A,H,S
X-ray: bursts [373]; infrared obs.: counterpart [120]; review [333]; see too [467]							
B1812-12	LMXB B x 12"	18 12.4 -12 06.0 18.1,+2.3	18 15 12 -12 05 00		375		X,M,A,H
B1813-140	LMXB ZB o	18 13 10.9 -14 03 15 16.4,+1.3	18 16 01.3 -14 02 11	NP Ser	17.5 1.3 1.0	G6III 0.29 [503]	0.813 d [467] X,U,M,A,H,S,Gr,Rx
X-ray obs.: Cds [313], color x color, color x intensity diagrams, models [256]; QPO [621][620]; optical obs.: broad band spectrum [503]							
B1820-303	LMXB GBA x 3"	18 20 27.8 -30 23 16 2.8,-7.9	18 23 40.5 -30 21 40	NGC 6624	18.7B	6250 30 [69] 5	0.19 h X,U,M,A,H,S,Rx,R
X-ray obs.: light curves, evolution [578], periodicity P _x =174.6 d [516], hard emission [69], QPO, spectra low emission [518]; UV and optical obs.: images, photometry [290]; UV obs.: counterpart, modulation, spectrum [7]; radio obs.: image [272]; see too [18][505][467]							
B1822-371	LMXB D	18 22 22.7 -37 08 04	18 25 46.7 -37 06 19	V691 CrA	15.3-16.3 0.1	0.15	250 - 625 5.57 h

X-ray obs.: spectrum, modulation [247]; optical obs.: spectra, light curves, absorption [238]; orbital par.: masses, incl. [467]; see too [122]		-0.9		X,U,M,A,H,G,P	
B1822-000	LMXB	18 22 48.3	18 25 22.1	Star [582]	625 - 1550
	x 3"	-00 02 29	-00 00 44	1:	1.3
X-ray obs.: spectra [539]; X-ray and optical obs.: optical counterpart, localization $\alpha=18:29:28.2$, $\delta=-23:47:49$ (2000), light curve [45]		19		X,U,M,A,H,S	
B1826-238	LMXB	18 26 24	18 29 28.4	Star [45]	750
	T(B?)	-24 49 31	-24 47 29		80
X-ray obs.: spectra [539]; X-ray and optical obs.: optical counterpart, localization $\alpha=18:29:28.2$, $\delta=-23:47:49$ (2000), light curve [45]		19		X,G,C	
B1832-330	LMXB	18 32 27.3	18 35 43.9	NGC 6652	200
	GBT	-33 01 24	-32 58 55		
X-ray obs.: type I burst [259]		1.5,-11.4		X,R,Bp	
B1837+049	LMXB	18 37 29.5	18 39 57	MM Ser	5625
	B	+04 59 20	+05 02 09	*DS	>0.4
Optical obs.: broad band spectrum [503]; see too [467]		36.1,+4.8		X,U,M,A,H,S	
Source (J)		Type of source	RA (1950)	Optical count.	V
(B)		characteristic	DEC		B-V
Name		Position			U-B
J1838.4-0301	LMXB	18 35 49.8	18 38 27.04	Star [387]	14
	P	-03 03 52.4	-03 01 10.7		* <362
X-ray obs.: pulse P=5.45s, image, light curve, periodogram [495], see too [65]		28.8,+1.5		5.45 s	
J1843+00	LMXB?	18 43 04.1	18 45 36.9		R
	PT	00 48 32.2	+00 51 45		29.5 s
X-ray obs.: identification [159]		33.0,+1.7		R,C,Rx,G	
X-ray obs.: spectrum, light curves, optical image [433]		18 46 39.8		7.5E4	
B1846-031	LMXB	18 46 39.8	18 49 17.1		
	T	-03 07 12	-03 03 44		
X-ray obs.: spectra, light curves, optical image [433]		-29.9,-0.9		X,Exo	
B1850-087	LMXB	18 50 21.1	18 53 04.8	star S [6]	175
	GB	-08 46 04	-08 42 20	NGC 6712	0.42
X-ray obs.: spectra [289]; optical obs.: positions [195], photometry and spectroscopy [29]; UV observations: image, light curves, modulation (short period=20.6 min) [255], see too [467]		25.4,-4.3		0.3433 h ?	
B1905+000	LMXB	19 05 53.4	19 08 27	Star [582]	250
	B	+00 05 18	+00 10 08		0.5
Optical obs.: broad band spectrum [503]		35.0,-3.7		X,U,A,H,S	
B1908+005	LMXB	19 08 42.8	19 11 15.9	V1333 Aql	14.8
	TB	+00 30 05	+00 35 06		0.6
X-ray obs.: hard spectra, light curve, image [243], propeller effects [607], bursts and accretion [191]; optical obs.: broad band spectrum [503], spectroscopy, rotation speed=62 Km/s, radial vel.=170 Km/s [500], optical bursts [470]; QPO [609]; see too [467]		35.7,-4.1		X,U,M,A,S,R,As,Rx	
B1915+105	LMXB?	19 12 51	19 15 13		7.5E3
	T	+10 51.4	+10 56 42		30
X-ray: spectrum, light curves, position [487], image & spectrum [184][183], light curves [96][218], spectral variability [59], outbursts [469], bursts, BH [442]; optical counterpart? [71]; radio obs. [590] [471][188][400]; infrared observations [402][169][173] BH? [441], jets and K band map [482]; rapid bursts [548]; QPO? [557][407]; accretion and jets [397]; plasma ejection, BH [240], see too [336]; HMXB?		45.4,-0.2		X,Gr,C,Rx	

X-ray light curve [277]									
	HMXB?	00 52 08.1	00 53 53	SMC	14.9	Be [131]	900		Rx
J0053.8-7226	BP	-72 42 58	-72 26 42						
XTE 0053-724		302.7,-44.7							
Soft X-ray: pulsations $P_x=91.13$ s [124] or $P_x=46.63$ [125]									
	HMXB?	00 57 30.3	00 59 12.9	star 1	14.08	B1 III	* 3800		15 d?
J0059.2-7138	PT	-71 54 60	-71 38 50	[529]	0.08	0.03			2.76 s
		302.1,-45.5							R,As,Exo,C
X-ray obs.: light curve, spectrum [258]; optical obs.: counterpart, image, spectrum, photometry [529]; Batse obs. review [65]									
	HMXB	01 15 45.6	01 17 05.1	SK 160	13.3	B0 Ib	12.5-1425		3.89 d
B0115-737	P	-73 42 22	-73 26 35		-0.14	0.03			0.7092 s
SMC X-1	o 3"	300.4,-43.6			-0.98				X,U,M,A
X-ray obs.: pulse profile, spin up [345], light curve [277]; Batse obs. review [65]; see too [335][619]									
	HMXB?	05 02 46.7	05 02 51.7	star 1	14.22 var	B0e	1.0 - 300		≈ 30 d [493]
J0502.9-6626	PT	-66 30 34	-66 26 26.5	LMC [492]	+0.05				4.06 s
CAL E		277.0,-35.5							E,R
X-ray obs.: pulse profile, $P_x=4$ s, and optical photometry [493]; optical obs.: image, optical pos., spectrum [492]									
	HMXB	05 29 43.2	05 29 48.4	star [227]	14.5 B	B2 e	* 94		
J0529.8-6556	TP?	-65 59 03	-65 56 51	LMC					69.5 s
	x 8"	275.9,-32.9							R
X-ray and optical obs.: spectra, light curves, $P_x=69.5$ s, optical counterpart [227]									
	HMXB	05 31 09	05 31 12.9			Be?	25		
B05310-6609.2	T	-66 09 12	-66 07 06			0.1			X,Exo,SL
	x 10"	276.2,-32.7							
	HMXB	05 32 47.3	05 32 49.2	Sk-Ph	14.0	O7 III-V	<75 - 1500		1.40 d
B0532-664	P	-66 24 13	-66 22 14		-0.1	0.1	1.61		13.5 s
LMC X-4	o 2"	276.3,-32.5			-1.1				X,U,M,A,H
X-ray obs.: orbital decay [478], spectrum [545]; Batse obs. review [65]									
	HMXB	05 32 26.4	05 32 32.0				* 5		
J0532.5-6551		-65 53 41	-65 51 41						
	x 8"	275.7,-32.6							R
X-ray obs.: soft spectrum [229]									
	HMXB	05 35 42.4	05 35 40.5	*Q [119]	12.3-14.9	B2 III-IVe	<0.25 - 4.5E3		16.7 d
B0535-668	TP	-66 53 39	-66 51 53	LMC	0.1	0.1			0.069 s
	o 2"	276.9,-32.2			-0.9				X,A
	HMXB	05 35 48.0	05 38 54.6	V725 Tau	8.9-9.6	O9.7 IIe	<75 - 2.8E3	1.5	111 d
B0535+262	TP	+26 17 18	+26 18 57	HD 24570	0.45-0.62	0.8	100		104 s
	o	181.4,-2.6			-0.54		1.95 - 11		X,U,A,H,C,FI
X-ray obs.: spectrum, light curve, pulse period history [150], pulse profiles [304]; QPO [180]; see too [352][17][334][545]; revision paper [20]; Batse obs. review [65]									
	HMXB	05 38 39.7	05 38 56.4	*1 [577]	16.7-17.5	B3 Ve	<42 - 1.1E3		1.70 d
B0538-641	U	-64 06 34	-64 05 01		-0.2	0.1			
LMC X-3	o 3"	273.6,-32.1			-0.6				X,U,M,A,H
	HMXB ?	05 35 42.4	05 35 40.4	star Q [271]	12.3 [135]	B2IIle	* 235		16.6 d
J0538-66	PT	-66 53 39	-66 51 53	LMC	-0.12	0.04 [160]			69 ms
		276.9,-32.3			-0.86				R,A,As,C
X-ray obs.: soft spectrum, image [88], light curve, spectrum [378]; X-ray and optical obs.: spectroscopy, photometry [135]; Batse obs. review [65]									

x 9"		288.2,-0.5		X-ray: pulse profiles, pulse periods (spin down), spectrum [136], see too [65]; spin-down? [385]; optical obs.: spectrum, image, other candidates [388]		X,E,As,R,Exo	
B1118-615	HMXB	11 18 45.2	11 20 57.2	He3-640	12.1	O9.5 III-Ve	2.5 - 1750
	PT	-61 38 31	-61 54 58		0.96	1.2	405 s
	o	292.5,-0.9			-0.30		X,A
Multiwaveband study [128][127]; Batse obs. review [65]; opt. obs.: spectral variability [594]							
B1119-603 Cen X-3	HMXB	11 19 01.9	11 21 15.2	V779 Cen	13.3	O6.5 II-III	250 - 7800
	P	-60 20 57	-60 37 24		1.07	1.4	2.09 d
	o 3"	292.1,+0.3			-0.04		4.84 s
X-ray obs.: broad band pulse profile, image, spectrum [25], pulsation period evolution [345], variability of emission [279], Batse obs. review [65], see too [410]; γ -ray obs.: [519], outburst (GeV) [592]; dependence pulse profile [344]; see too [632]							
B1145-619	HMXB	11 45 02.3	11 47 28.5	V830 Cen	13.1	B2 Iae	100 - 1000
	P	-61 40 33	-61 57 13		1.5	1.6	296.8 s
	o 2"	295.5,-0.0			0.15		X,A,E,C
X-ray obs.: pulses profile [345], periodogram, pulse period, pulse profile [209], Batse obs. review [65]							
B1145-619	HMXB	11 45 33.6	11 45 00.1	Hen 715	9.3	B1 Vne	100 - 2.5E4
	PT	-61 55 44	-62 12 25	HD102567	0.18	0.35	2.76
	o	295.6,-0.2		V 801 Cen	-0.81		187.5 d
X-ray obs.: periodogram [209]; multiwavelength observations: light curves, spectral type (B1Ve / E _{B-V} = 0.29) [534], Batse obs. review [65]							
B1223-624 GX 301-2	HMXB	12 23 49.7	12 26 37.6	BP Cru	10.8	B1-1.5 Ia	225 - 2.5E4
	PT	-62 29 37	-62 46 13	Wra 977	1.76	1.8	7.59
	o 3"	300.1,-0.0			0.42		41.5 d
X-ray spectrum, pulse period, optical spectrum, light curve [452][110][484], pulse profiles, spectra, light curves [3][345], Batse obs. review [65]; X-ray and optical obs.: spectrum, pulse period, light curve [452][110][484]; spin up episodes [293]; accretion: model [424]							
B1239-599	HMXB	12 39 07.5	12 42 01.7				696 s or 680 s
	P	-59 55 39	-60 12 06				X,U,M,A,H,S,C,Gr,As,K
	x 30"	301.8,+2.6					
B1244-604	HMXB	12 44 38	12 47 35.3				191 s
	T	-60 22.2	-60 38 34				X,A,H,S
	x 6.2'	302.5,+2.2					
B1246-588	HMXB	12 46 39	12 49 35.9				X,A
	T	-58 51.0	-59 07 20				
	x 4.5'	302.7,+3.8					X,U,A,H
B1249-637	HMXB	12 39 53.2	12 42 50.4	HD110432	5.31	B0 IIle	55
	o	-62 47 06	-63 03 32	SAO252002	0.27	0.40	
		302.0,-0.2			-0.79		X,H
B1255-567	HMXB	12 51 39.6	12 54 37	μ^2 Cru	5.17	B5 Ve	20
	o	-56 53 50	-56 10 05	HD112091	-0.12		
		303.4,+5.7			-0.51		X,H
B1258-613 GX 304-1	HMXB	12 58 11.8	13 01 17.2	V 850 Cen	13.5-14.2	B2 Vne	7.5 - 5E3
	PT?	-61 19 58	-61 36 06	*2 (MMV)	1.7	2.0	133 d?
	o 2"	302.1,+1.2			0.8		272 s
X-ray obs.: Batse review [65]							
B1417-624	HMXB	14 17 25.5	14 21 12.8	*7 [14]	17.2:	OBe	50 - 1075
	PT	-62 28 11	-62 41 54		0.7:	2:	42.12 d [181]
							17.6 s

X-ray: pulse profiles, spin rate, orbital analysis [181], Batse obs review [65]												X,U,M,A,S,C	
o 313.0,-1.6													
HMXB 15 38 38.6 15 42 23.3 QV Nor 14.4 B0 lab 2.1 <75 - 750 3.73 d													
B1538-522 P -52 13 37 -52 23 10 *12 1.9 2.07E-05 529 s													
o 327.4,+2.1 0.6 X,U,M,A,H,S,G,Exo,C													
X-ray obs.: light curves, orbital parameters, pulse period history [137], spectrum, pulse period (spin down) [468], spectrum (spin up) [474], models (structure), spectra [85], Batse obs. review [65]													
HMXB 15 53 55.6 15 57 49.1 675 30.6 d													
PT -54 16 15 -54 24 52 9.3 s													
x 35" 327.9,-0.9 X,S,C													
X-ray obs.: Batse review [65]													
HMXB 15 50 26.4 15 54 21.9 HD141926 8.60 B2nne 42.5													
-55 10 54 -55 19 44 SAO243098 0.56													
o 327.0,-1.2 -0.43 X,H													
HMXB 16 57 16.8 17 00 47.8 B0-6 lab 100 - 1050 10.4 d													
PT -41 35 59 -41 40 22 20-18.3B 8.28 38 s													
x 15" 344.4,+0.3 X,OAo,G,C													
X-ray obs.: pulse profile, pulsation-period evolution [345], Batse obs. Review: orbital parameters [65], orbital elements (period) [101]; neutron star ? [326]; Glitch[344]; see too [52]													
HMXB 17 00 32.7 17 03 56.6 HD153919 6.6 O6.5f <2.75 - 2.75E3 0.7 - 1.5 3.41 d or 13.81 d [297]													
-37 46 29 -37 50 39 V884 Sco 0.52 0.1 - 2.0													
B1700-377 o 347.8,+2.2 -0.72 0.1 - 2.0													
X,U,M,S,C,Gr,P,K,Exo,G													
Rx													
X-ray obs.: light curves, spectrum [321][515][486], hard spectrum [307], light curves [485], light curves (period=13.81 d) [297], variable hard X-ray spectrum, masses of sistem [430][473], soft component X-ray spectrum, light curve [225][226], broad band X-ray obs. [350]; optical obs.: spectroscopy [284]; neutron star [326]; ultraviolet obs.: variations?[283], polarization [630]													
HMXB 17 22 33 17 25 55.4 5 - 125													
P -36 22 05 -36 24 41 413 s													
x 9" 351.5,-0.6 X,Exo													
X-ray obs.: see [65]													
Source (J)	Type of source	RA (1950)	DEC	RA (2000)	DEC	Optical count.	V	B-V	U-B	spectral type	2 - 10 keV	100 - 200 keV	P _{orbital}
(B)	characteristic	DEC								E _{B-v}	40 - 80 keV	200 - 600 keV	P _{pulsar}
Name	Position	l ^h , b ^m									80 - 120 keV	> 1000 keV	catalogues
J1744.7-2713	HMXB	17 41 37.4	-27 12 33	17 44 45.4	-27 13 47	HD 161103	8.4-8.7	0.44	-0.64	B2V-IIIe	*33		R
o 5" 1.3,+1.1													
Optical obs.: counterpart, image, spectrum [409]													
J1750-27	HMXB?	17 46 05	-26 37 42	17 49 12.7	-26 38 36					Be?	23	29.8 d	
	PT	2.4,0.5									6.2	4.45 s	C,R,As
X-ray obs.: pulse phases, spin up, pulse profile [496], Batse review [65]													
B1807-10	HMXB ?	18 07.9	-10 53	18 10 40	-10 52 19						<50 - 250		X,U
	T												
	x 1.3°	18.6,+3.9											
J1826.2-1450	HMXB	18 23 13.4	-14 52 30	18 26 14.8	-14 50 42	LS 5039	11.23	0.94	-0.16	O7V	*235		R
Optical obs.: counterpart, image, spectrum [409]													
B1833-076	HMXB	18 33 46.3	-07 38 54	18 36 28.9	-07 36 21						40 - 5.0E3		
Sct X-1	PT	24.5,-0.2									5.52		111 s
	x 30"												X,A,H
B1839-06	HMXB	18 39.0	-05.9	18 41 40.5	-05 51 04						25		
	T												

	x 30"	26.6,-0.5							X,G
B1839-04	HMXB PT x 24'	18 39.2 -04.5 27.9,+0.1	18 41 51 -04 27 04				62.5		81.1 s X,G
B1843-024	HMXB? TP	18 43 54 -02 30 30.2,-0.0	18 46 31 -02 26 44			Be?	250 *25		100 d ? 94.8 s G
X-ray obs.: pulses profiles, light curves, spectrum [302], see too [65]									
B1845-03	HMXB T x 24'	18 44.7 -03.2 29.7,-0.5	18 47 19 -03 08 40				25		X,G
B1845-024	HMXB PTB x 30"	18 45 41.1 -02 28 37 30.4,-0.4	18 48 17.6 -02 25 13				25 - 1100 9 - 30 3 - 10		241 d 94.8 s X,A,H,S,G,C,Exo
X-ray obs.: identification GRO J1849-03 $\equiv$ GS 1843-02 $\equiv$ X1845-024 [527], spectra, image, light curve, Be or BH? [604]									
B1855-02	HMXB T x 24'	18 55.4 -02.8 31.3,-2.7	18 58 00.8 -02 43 54				50		X,G
B1901+03	HMXB T x 10'	19 01.7 +03 06.0 37.2,-1.4	19 04 12 +03 10 32				<50 - 2.1E3		X
B1907+097	HMXB PT o	19 07 15.1 +09 44 54 43.7,+0.5	19 09 37.8 +09 49 49	Star [582]	16.4 3.2	Bl 3.3	100 - 6.9E3 2.3		8.38 d 438 s X,U,M,A,H,R,X,G,C
X-ray obs.: P _{pulse} $\equiv$ 440.3s, periodogram [261]; dipping activity [263]; Batse obs. Review [65]									
B1909+048	HMXB o,r	19 09 21.3 +04 53 54 39.7,-2.2	19 11 49.5 +04 58 58	SS433 V1343 Aql	14.2 2.1 0.6	2.6	50 - 250		13.1 d X,U,A,H
X-ray obs.: spectrum [43], hard emission [69], dipping, burst, accretion [517], periodicity? [516]; high frequency quasisperiodic oscillations [47]; optical obs.: broad band spectrum [503]									
Source (J) (B)	Type of source characteristic Position	RA (1950) DEC l'', b''	RA (2000) DEC	Optical count. V	spectral type E _{B-V} U-B		2 - 10 keV 40 - 80 keV 80 - 120 keV <25 - 625	100 - 200 keV 200 - 600 keV > 1000 keV	P _{orbital} P _{pulsar} catalogues
B1942+274	HMXB ? T x 10'	19 42 58 +27 29 24 63.4,+1.7	19 45 00.4 +27 36 43						X,A

(C) Others sources

Source (J) (B)	Type of source characteristic Position	RA (1950) DEC l'', b''	RA (2000) DEC	Optical count. V	spectral type E _{B-V} U-B		2 - 10 keV 40 - 80 keV 80 - 120 keV *150	100 - 200 keV 200 - 600 keV > 1000 keV	P _{orbital} P _{pulsar} catalogues
B0050.1-7247	Binary TP x 30"	00 52 45.3 -73 01 52 302.6,-44.4	00 54 28.7 -72 45 37	AV 111	Be				8.9 s R
X-ray: spectrum, image, pulsations: Px= 8.9s [264]; see too [65]									
Pulsar		01 09 42.5	01 11 08		B		247		

J0111.2-7317	T o 1"	-73 32 41 3000.83,-43.76	-73 16 46	SMC	* 13 - 26	Rx,As,C
X-ray obs.: new source [104]; optical obs.: counterpart R=15.29, V-R=+0.06 [265]						
B0240-001	AGN Seyfert 2	02 40 07.2 -00 13 48 172.1,-51.9	02 42 40.8 -00 01 04	NGC 1068	30 0.7 0.15	G,Bp,As
X-ray obs.: spectrum [374][267][571][520]; see too [415]; optical and radio obs.: [95]; see too [193][94][555][196]						
J0356-366	Binary?	03 35 58.1 -36 03 10 237.5,-53.7	03 56 34 -36 40 24		*100	R
Soft X-ray: spectrum, optical counterpart? photometry, light curve, IR [112]						
J0437-4715	Binary P	04 35 48.9 -47 21 05 253.4,-42.0	04 37 15 -47 15 08	20.84 1.35	*100 0.07	5.74 d 5.757 ms R,Gr
X-ray obs.: spectrum, pulse profile [232], properties [448]; see too [57]; UV and X-ray obs.: soft spectrum and light curves [603]; optical obs.: spectroscopy, photometry, evolution LMXB? [152]; radio obs.: pulse profile, polarization [413], proper motion, parallax [483]; see too [39]						
J0501.7+1146 GRB 970228	B	04 59 10 11 42 07 188.9,-17.9	05 01 57 11 46 24	21.3 - 26.4	1.8E5 <833 <700	1.8E5 <30 Bp,C
X and γ -ray obs.: light curves, spectra, bursts [190][140]; γ -ray obs.: bursts [526]; optical obs.: images (V,R) [583], counterpart, VRI magnitudes [480], light curve R band [192], proper motion [479]; see too [593]						
B0531+219 Crab Nebula	Pulsar SNR	05 31 31.4 +21 58 54 184.6,-5.8	05 34 31.9 +22 00 52	NP 0531	0.55 [221] 159.16 33.30	30 10 0.033s H,R,U,A,Gr,Bp
X-ray obs.: hard spectra [200][565], phase histograms and variations in the light curve [394]; X-ray and γ -ray pulse profiles [372], see too [497][345]; line 511 keV [524]; γ -ray [561]; UV obs.: spectrum, pulse profile [221]; theory: radiation mechanisms [167]; see too [73]						
J0633+1746 Geminga	Pulsar	06 30 59.1 +17 48 36 195.1,+4.2	06 33 54.4 +17 46 14.6		* $\approx 1E3$	0.237 s R,As
X-ray obs.: spectra, models, pulse profiles [234]; X-ray and UV observations [233]; γ and X-ray obs.: pulses [231][62], see too [2]; γ -ray obs [375]; optical obs.: [369], pulsations [509]; optical and UV: magnetic field [393]; review paper [64]; radio pulsar [354]; see too [285]						
Source (J) (B) Name	Type of source characteristic Position	RA (1950) DEC [l° , b°]	RA (2000) DEC	Optical count. V B-V U-B	spectral type E_{B-V}	P_{orbital} P_{pulsar} catalogues
B0656+14	Pulsar	06 56 57.8 14 18 25 201.1,8.3	06 59 48 +14 14 12	25 -0.15	2 - 10 keV 40 - 80 keV 80 - 120 keV	100 - 200 keV 200 - 600 keV > 1000 keV
X-ray obs.: soft spectrum, light curves [451], spectra, pulse profile [182]; optical obs.: pulsed optical emission [508], see too [8]						
J0720.4-3125	Binary P	07 18 29.5 -31 20 11 244.2,-8.2	07 20 24.9 -31 25 51.3		* 600	0.384860 s R
Soft X-ray: spectrum, light curve, optical image [228], see too [65]; theory: magnetic field decay [616]						
J0751+1807	Binary P	07 48 16 +18 15 20 202.7,21.1	07 51 09.2 +18 07 38.7		5	8.391 s [228] R
Soft X-ray: image [58]						
B0833-450 Vela Pulsar	Pulsar	08 33 39 -45 00 19 263.5,-2.8	08 35 20 -45 10 45	23.65 0.24 -0.51 [412]	1.15	0.263 d 3.48 s R,C
X-ray spectrum, jets [359]; radio observation [189][223]; γ -ray obs.: TeV energies [601]; optical obs.: UBVR photometry [412]; glitch, spin up [1]						
						89 ms E,U,M,A,H,As,R

AGN		09 45 28.8	09 47 40.6	MCG-5-23-16	95	
B0945-307	Seyfert 2	-30 42 36 262.7,+17.3	-30 56 33			G,As
X-ray obs.: spectrum [520], light curve, spectrum [618]						
Pulsar		10 55 48.8	10 57 59		I	
B1055-52		-52 10 51 286.0,6.6	-52 26 56			0.197 s Exo,As,R
X-ray: image, spectrum [510], see too [418]; optical obs.: emission [391]						
QSO		12 26 33	12 29 06	3C273	12.5	
B1226+023		02 19 44 289.4,+64.3	02 03 09		0.03	2.53 1.20
X-ray obs.: hard spectrum [357][328]; broad band spectrum X-ray [207]; neighbouring sources [450]; IUE/EUVE/X-ray/ γ -ray [459]; infrared obs.: jets [416]; multiwavelength obs.: spectrum, phot, tables etc. [595]; see too [337][63][545][327]						
AGN		12 32 55.2	12 35 37	NGC 4507	50	0.2
B1232-396	Seyfert 2	-39 37 48 299.6,+22.9	-39 54 19		2	0.02
X-ray obs.: spectrum [50][520][51]						
Binary		12 58 38.3	13 02 47.68	Be	10	1236.79 d
B1259-63	P	-63 34 01.9 305.2,-1.0	-63 50 09		<1E-4 [552]	47.7 s C
X-ray obs.: GRO multi-instrument spectrum [552]; see too [291]						
AGN		13 02 32.0	13 05 27	NGC 4945	50	50
B1304-497	Seyfert 2	-49 12 01 305.3,13.3	-49 28 04		150	20
X-ray obs.: broad band spectrum [166]; spectrum [520], profiles, light curves, spectrum [266]; infrared obs.: spectroscopy [298]; optical obs.: profiles, spectra, physical parameters [248]; see too [108][214] [338]						
AGN		13 22 28.5	13 25 24.4	NGC 5128	312	1-3
B1322-427		-42 45 24 309.5,+19.4	-43 01 00		13.57	≈ 0.5
Cen A					3.90 - 1.7	<0.2
X-ray observation: hard spectrum, variations [72], light curve, soft X-ray spectrum [405], light curve, spectrum low and high energy [274], image, jet, emission [165], see too [357][564]; X-ray survey [19]; optical spectroscopy [537]; infrared obs.: image, CD, model (geometry) [457]; radio obs.: molecular absorption [625]; theory: production of hard X-ray [358]; see too [626][273][5]						
Type of source		RA (1950)	RA (2000)	Optical count.	V	spectral type
(B)	Characteristic	DEC	DEC		B-V	E_{B-V}
Name	Position	l'' , b''		U-B		
Pulsar		15 09 59.2	15 13 55.7	MSH 15-52	*2800	0.3 - 0.6
B1509-58		-58 56 58	-59 08 09	G320.4-1.2	2.5	0.03 - 0.15
PSR 1509-58		320.3,-1.2			0.3 - 1.5	<0.007 - 0.03
X-ray obs.: hard spectrum and γ -ray, pulse profiles [222][376][324], profile, spectrum soft X-ray [220], spectra X and broad band [360]; γ -ray: theory, magnetic fields [236]; SNR analysis [563]						
		15 47 00	15 50 58.8	16	<7.8E3 - 3.0E4	
J1550-564	TB	-56 19 33	-56 28 35		<39 - 247	Rx,C,As
X-ray obs.: new source, BH?[363]; optical obs.: counterpart [426], QPO [177]; radio Obs.: counterpart [91], large flare [465]						
o 1".5		326.22,-2.29			413	
J1709-267		17 06 11.5	17 09.3			
Source J170930.2-263927 Rosat observation? [364]						
J1716-389		-38 50 348.3,-0.3	-38 53		1.0E3	
Soft X-ray: spectrum, image [4]						
						Rx
						K

J1723-376	T x 2'	17 20 11 -37 36 14 350.19,-0.861	17 23 36 -37 39	1.9E3	Rx			
X-ray obs.: new source, QPO [362]								
B1730-312		17 30 23.7 -31 10 57.9 356.7,+1.0	17 33 37.6 -31 13 12	1.0E3 8.6 - 10 5.1	K,Gr			
X-ray: hard spectrum, light curve, image [584], soft spectrum and image [76], observations [75]; see too [585]								
B1734-292	Galaxy x 1'	17 34 14 -29 09 02 358.84,+1.4	17 37 24.8 -29 10 48	85	X,Gr,R			
X-ray obs.: spectrum, image [447][446], position, optical candidates, counterpart [42]; radio, infrared and optical counterpart: Seyfert I galaxy [366]								
J1739-302	T	17 35 40.5 -30 13 27 358.1,+0.6	17 38 53 -30 15.1'	2.2E3 [525]	Rx			
X-ray: spectrum [525]								
J1744-2916		17 41 30.9 -29 15 40.2 359.6,0.0	17 44 42 -29 16 54	83	Bp			
X-ray obs.: position (RXJ1745.7-2904?) [262]								
B1747-312		17 47 40 -31 15 05 358.6,-2.2	17 50 54.2 -31 15 51.8	4400	Gr			
X-ray: spectrum, image [447]								
B1747-341	x 5'	17 47 26 -34 11 24 356.1,-3.6	17 50 45.1 -34 12 11.7	22 2.0	Gr,R			
X-ray obs.: position, optical candidates, counterpart [42]								
J1747.0-2853	TB	17 43 51 -28 51 56 0.2,-0.2	17 47 02 -28 53.0	195	Bp			
X-ray obs.: new source or GX +0.2-0.2? [55]								
Source (J) (B) Name	Type of source characteristic Position	RA (1950) DEC l ^h , b ^m	RA (2000) DEC	Optical count. V B-V U-B	spectral type E _{B-V}	2 - 10 keV 40 - 80 keV 80 - 120 keV 1000	100 - 200 keV 200 - 600 keV > 1000 keV	P _{orbital} P _{pulsar} catalogues
J1748-248		17 48 06 -24 45 4.2,+1.1	17 51 10.5 -24 45 45					K
X-ray observation: spectrum, image [4]								
J1748-288	T x 1'	17 44 58 -28 28 13 0.670,-0.238	17 48 08 28 29 12			< 1.8E4 [542] < 147		Rx,C
X-ray obs.: new source [522], max. Emission [241]; radio obs.: counterpart [246]								
J1750.8-2900		17 47 37.3 -28 59 13 0.5,-1.0	17 50 48 -29 00 00			1.8 E3		Bp
X-ray obs.: position [53]; radio obs.: counterpart [365]								
J1755-324		17 52 12 -32 28 12	17 55 28.6 -32 28 39			1000 [463] 15.6		

X-ray obs.: emission [444]		358.0-3.6		2.0 [444]		Rx, Gr	
J1810.8-2609	T	18 07 38 -26 07 19 5.2,-3.4	18 10 44.5 -26 06 39	195			
X-ray obs.: source [568], position and emission [567]							
Binary							
J1820.5-1437	P	18 17 38.4 -14 35 47.3 x 30"	18 20 29.5 -14 34 24	83 [562]			
X-ray obs.: image, spectrum, light curves [287]							
Pulsar							
B1821-24		18 21 27 -24 53 52 7.8,-5.6	18 24 32 -24 52 11	7			
X-ray obs.: pulse profile, HRI image, 2 sources [151]; pulse phase, spectrum [481]; optical obs.: polarimetry [30]; radio obs.: timing, proper motion [132]							
Pulsar							
J1841-045	SNR	18 38 39.8 -04 59 06 27.4,0.0	18 41 19.2 -04 56 12.5	83			
X-ray obs.: spectrum, pulses ($P_x=11.8$ s) [587]							
Binary?							
J1845.0-0433	T	18 42 22.5 -04 37 05 28.1,-0.6	18 45 1.5 -04 33 55.5 [130]	4	09.51 2.45 1.04		As
X-ray obs.: spectrum, image, light curves [596]; optical obs.: counterpart, image, spectrum [130]							
Binary							
J1858+034	TP	18 56 06 03 16 52 36.7,-0.1	18 58 36 +03 21	795	Be		Rx
X-ray obs.: identification [464], $P_x=22$ Is [550], position [361]							
AGN							
B2315-426	Seyfert 2	23 15 38.4 -42 39 00 348.1,-65.7	23 18 23.5 -42 22 35	100 1.6 < 1.0			G,C
X-ray obs.: spectrum [51] [520], properties [617]; MeV emission [351]; IR obs. [306]							

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