
Interacting Binaries

An Electronic Newsletter

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Contents

1 Editorial	3
2 Abstracts of refereed papers	4
– TT Ari: Out from the Positive Superhump State <i>Andronov et al.</i>	4
– Unique Magnetic Cataclysmic Variable V1432 Aql. Third Type of Minima and Synchronization <i>Andronov et al.</i>	4
– The Thermal State of the Accreting White Dwarf in AM Canum Venaticorum Binaries <i>Bildsten et al.</i>	5
– The long period Intermediate Polar 1RXSJ154814.5-452845 <i>de Martino et al.</i>	5
– The possible orbital period of the nova V1493 Aquilae <i>Dobrotka et al.</i>	6
– A Catalog and Atlas of Cataclysmic Variables: The Final Edition <i>Downes et al.</i>	6
– The massive eclipsing LMC Wolf-Rayet binary BAT99-129. 1 Orbital parameters, hydrogen content and spectroscopic characteristics <i>Foellmi et al.</i>	7
– FUSE and HST/STIS far-ultraviolet observations of AM Herculis in an extended low state <i>Gänsicke et al.</i>	7
– A ZZ Ceti white dwarf in SDSS J133941.11+484727.5 <i>Gänsicke et al.</i>	8
– HST/STIS spectroscopy and modeling of the long term cooling of WZ Sagittae following the July 2001 outburst <i>Godon et al.</i>	8
– Multicolor Observations of ASAS 002511+1217.2 <i>Golovin et al.</i>	9
– GSC 4232.2830, an Eclipsing Binary with Elliptical Orbit <i>Goranskij et al.</i>	9
– XMM-Newton and Optical Follow-up Observations of SDSS J093249.57+472523.0 and SDSS J102347.67+003841.2 <i>Homer et al.</i>	10
– Discovery of a Promising Candidate of WZ Sge-Type Dwarf Novae, ASAS 160048-4846.2: Evidence for Double-Peaked Humps <i>Imada et al.</i>	10
– The 2003/2004 Superoutburst of SDSS J013701.06091234.9 <i>Imada et al.</i>	11
– The 2005 July Superoutburst of the Dwarf Nova 2QZ J021927.9-304545: the SU UMa nature confirmed <i>Imada et al.</i>	11
– Continued Hyperactivity on the Secondary Star of AM Her <i>Kafka et al.</i>	12
– Cyclotron emission from accretion plasma columns in magnetic cataclysmic variable stars <i>Kalomeni et al.</i>	12
– Detection of orbital and superhump periods IN Nova V2574 Ophiuchi (2004) <i>Kang et al.</i>	13
– Irradiated atmospheres of accreting magnetic white dwarfs with an application to the polar AM Herculis <i>König et al.</i>	13
– The effect of dust obscuration in RR Tel on optical and IR long-term photometry and Fe II emission lines <i>Kotnik-Karuza et al.</i>	14
– Unveiling the nature of <i>INTEGRAL</i> objects through optical spectroscopy. II. The nature of four unidentified sources <i>Masetti et al.</i>	14

– Unveiling the nature of <i>INTEGRAL</i> objects through optical spectroscopy. III. Observations of seven southern sources <i>Masetti et al.</i>	15
– SDSSJ212531.92-010745.9 - the first definite PG1159 close binary system <i>Nagel et al.</i>	15
– Steps towards a solution of the FS Aurigae puzzle - I. Multicolour high-speed photometry with UL-TRACAM <i>Neustroev et al.</i>	16
– The periods of the intermediate polar RX J0153.3+7446 <i>Norton & Tanner</i>	16
– The disk instability model for dwarf nova outbursts <i>Osaki</i>	17
– A tomographic study of the classical nova RR Pic <i>Ribeiro & Diaz</i>	17
– Doppler tomography of the asynchronous polar BY Camelopardalis <i>Schwarz et al.</i>	18
– A 110 MG cyclotron harmonic in the optical spectrum of RXJ1554.2+2721 <i>Schwope et al.</i>	18
– The first direct spectroscopic detection of a white dwarf primary in an AM CVn System <i>Sion et al.</i>	19
– Numerical Simulations of the Onset and Stability of Dynamical Mass Transfer in Binaries <i>D’Souza et al.</i>	19
– Cataclysmic Variables from SDSS V. The Fifth Year (2004) <i>Szkody et al.</i>	20
– The Recently-Discovered Dwarf Nova System ASAS J002511+1217.2: A New WZ Sge Star <i>Templeton et al.</i>	20
– The decline and fall of GRS 1915+105: the end is nigh? <i>Truss & Done</i>	21
– Angular momentum losses and the orbital period distribution of cataclysmic variables below the period gap: effects of circumbinary disks <i>Willems et al.</i>	21
– VLT spectroscopy and non-LTE modeling of the C/O-dominated accretion disks in two ultracompact X-ray binaries <i>Werner et al.</i>	22
– Basic physical properties of the low-temperature contact binary system V781 Tau and the near-contact binary system V836 Cyg <i>Yakut</i>	22
– Time-resolved observations of the short period CV SDSS J123813.73-033933.0 <i>Zharikov et al.</i>	23
3 Other abstracts	23
– Open European Journal on Variable stars <i>Brát</i>	23
– On the Question of the Behavior of O-C Residuals of the Active Algol-Like Binary RZ Casiopeiae <i>Golovin & Pavlenko</i>	24
– The New W UMa-Type Variable GSC 04370-00206 <i>Kim et al.</i>	24
– New pulsating White Dwarfs in Cataclysmic Variables <i>Nilsson et al.</i>	24
– New pulsating White Dwarfs in Cataclysmic Variables <i>Smirnova et al.</i>	25
4 Conference announcements	25
– International Conference “Interacting Binary Stars”, Odessa, Ukraine, August 20-24, 2007 <i>Andronov</i>	25
– The XIV Young Scientists’ Conference on Astronomy and Space Physics <i>Golovin</i>	26
5 Jobs and positions	28
– Post Doctoral Research Assistant at the University of Warwick <i>Marsh</i>	28
– Postdoc position at the University of Nevada Las Vegas <i>Proga</i>	28
– Postdoc position available at Universidad Catlica del Norte <i>Unda-Sanzana</i>	29
– XMM-Newton Postdoctoral position in X-ray Astronomy <i>Webb</i>	29
6 As seen on astro-ph	30
6.1 Cataclysmic Variables and related systems	30
6.2 LMXBs and related systems	31
6.3 HMXBs and related systems	33
6.4 ULXs and extragalactic XRBs	35
6.5 Accretion discs and accretion theory	36

6.6 Mergers and accretion induced collapse	36
6.7 Radio pulsars in binaries	37
6.8 Magnetars: AXPs and SGRs	37
6.9 Other binary systems	38

1 Editorial

Dear IB friends,

here it is, IB News #24 – and it is good to see that the number of contributions is similarly high as in the last issue, underlining the activity in the field. We were especially pleased by the number of job adverts that we received. The only editorial change in this issue is that we have split the section "as seen on astro-ph" into nine topics, as some of you have suggested. Let us know if you find this helpful.

As always: happy reading,

Boris Gänsicke & Andy Norton

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2 Abstracts of refereed papers

TT Ari: Out from the Positive Superhump State

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The nova-like variable TT Ari had shown a luminosity change with a drastic change of the light curve. Since the "switch" from the bright "negative superhump" state before, it had switched to the "positive superhump" state in 1997, which lasted till at least December 10, 2004. In October-November, 2005, the star was fainter, and the superhumps are not pronounced. The dominating type of variability was quasi-periodic oscillations with a time-scale of 10-35 minutes and amplitude 0.07 mag (B). This state is distinctly different from both the bright "negative superhump" state and the "positive superhump" state. Such an intermediate luminosity state is expected not to be long, so further monitoring is needed.

Download/Website: <http://www.konkoly.hu/cgi-bin/IBVS?5664>

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Unique Magnetic Cataclysmic Variable V1432 Aql. Third Type of Minima and Synchronization

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Astronomy & Astrophysics, in press (AA/2005/4117)

Results of a CCD study of the variability of the unique magnetic cataclysmic variable V1432 Aql in the Astronomical Observatory of Mallorca are presented. The "multi-comparison star" method had been applied for better accuracy estimates. The linear ephemeris based on 76 timings of orbital eclipses for 1993–2004 is $HJD_{min} = 2451492.09876(14) + 0.140235812(12) \cdot E$. For the wide minima owed to the spin variability, the quadratic ephemeris $HJD_{spin} = 2449638.327427(74) + 0.14062831(23) \cdot E - 7.81(11) \cdot 10^{-10} E^2$ was determined. The rate of the spin-up of the white dwarf corresponds to the synchronization time-scale is determined to be (96.7 ± 1.5) years, in an agreement with theoretical model of the accretion torque. The third type of minima were detected, which occur with the spin period. It was interpreted by presence of the second accretion column. For adopted values of masses $M_1 = 0.9$ and $M_2 = 0.3$ solar masses, the estimated accretion rate is $\sim 7 \cdot 10^{-10} M_{\odot}/yr$. A further multi-colour monitoring is needed for studies of late stages of the "spin-orbital" synchronization and periodic changes of the accretion geometry caused by "idling" of the white dwarf.

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The Thermal State of the Accreting White Dwarf in AM Canum Venaticorum Binaries

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Astrophysical Journal, in press (astro-ph/0510652)

We calculate the heating and cooling of the accreting white dwarf (WD) in the ultracompact AM Canum Venaticorum (AM CVn) binaries and show that the WD can contribute significantly to their optical and ultraviolet emission. We estimate the WD's effective temperature, T_{eff} , using the optical continuum for a number of observed binaries, and show that it agrees well with our theoretical calculations. Driven by gravitational radiation losses, the time averaged accretion rate, $\langle \dot{M} \rangle$, decreases monotonically with increasing P_{orb} , covering six orders of magnitude. If the short period ($P_{\text{orb}} < 10$ min) systems accrete at a rate consistent with gravitational radiation via direct impact, we predict their unpulsed optical/UV light to be that of the $T_{\text{eff}} > 50,000$ K accreting WD. At longer P_{orb} we calculate the T_{eff} and absolute visual magnitude, M_V , that the accreting WD will have during low accretion states, and find that the WD naturally crosses the pulsational instability strip. Discovery and study of pulsations could allow for the measurement of the accumulated helium mass on the accreting WD, as well as its rotation rate. Accretion heats the WD core, but for $P_{\text{orb}} > 40$ minutes, the WD's T_{eff} is set by its cooling as $\langle \dot{M} \rangle$ plummets. For the two long period AM CVn binaries with measured parallaxes, GP Com and CE 315, we show that the optical broadband colors and intensity are that expected from a pure helium atmosphere WD. This confirms that the WD brightness sets the minimum light in wide AM CVn binaries, allowing for meaningful constraints on their population density from deep optical searches, both in the field and in Globular Clusters.

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The long period Intermediate Polar 1RXSJ154814.5-452845

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Astronomy & Astrophysics, in press (astro-ph/0512531)

We present the first time resolved medium resolution optical spectroscopy of the recently identified peculiar Intermediate Polar (IP) 1RXSJ154814.5-452845, which allows us to precisely determine the binary orbital period ($P_{\Omega} = 9.87 \pm 0.03$ hr) and the white dwarf spin period ($P_{\omega} = 693.01 \pm 0.06$ s). This system is then the third just outside the purported ~ 6 -10 hr IP orbital period gap and the fifth of the small group of long period IPs, which has a relatively high degree of asynchronism. From the presence of weak red absorption features, we identify the secondary star with a spectral type $K2 \pm 2$ V, which appears to have evolved on the nuclear timescale. From the orbital radial velocities of emission and the red absorption lines a mass ratio $q = 0.65 \pm 0.12$ is found. The masses of the components are estimated to be $M_{\text{WD}} \geq 0.5 M_{\odot}$ and $M_{\text{sec}} = 0.4 - 0.79 M_{\odot}$ and the binary inclination $25^{\circ} < i \leq 58^{\circ}$. A distance between 540-840 pc is estimated. At this distance, the presence of peculiar absorption features surrounding Balmer emissions cannot be due to the contribution of the white dwarf photosphere and their spin modulation suggests an origin in the magnetically confined accretion flow. The white dwarf is also not accreting at a particularly high rate ($\dot{M} < 5 \times 10^{16} \text{ g s}^{-1}$), for its orbital period. The spin-to-orbit period ratio $P_{\omega}/P_{\Omega} = 0.02$ and the low mass

accretion rate suggest that this system is far from spin equilibrium. The magnetic moment of the accreting white dwarf is found to be $\mu < 4.1 \times 10^{32} \text{ G cm}^3$, indicating a low magnetic field system.

Download/Website: <http://it.arxiv.org/abs/astro-ph/0512531>

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The possible orbital period of the nova V1493 Aquilae

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Astronomy & Astrophysics, in press (astro-ph/0511350)

Period analysis of CCD photometry of V1493 Aql (Nova Aql 1999 no. 1) performed during 12 nights through *I* and *R* filters a few weeks after maximum is presented. The PDM method for period analysis (Stellingwerf 1978) is used. The photometric data is modulated with a period of 0.156 ± 0.001 d. Following the sinusoidal shape of the phased light curve, we interpret this periodicity as possibly orbital in nature and that is consistent with a cataclysmic variable above the period gap.

Download/Website: <http://xxx.lanl.gov/abs/astro-ph?papernum=0511350>

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A Catalog and Atlas of Cataclysmic Variables: The Final Edition

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Journal of Astronomical Data, in press

The Catalog and Atlas of Cataclysmic Variables has been a staple of the CV community for over 10 years. The catalog has grown from 751 CVs in 1993 to over 1500 CVs at present. The catalog became a “living” edition in 2001, and its contents have been continually updated since that time. Effective 01 February 2006, the catalog will transition to an archival site, with no further updates to its contents. While it is anticipated that the site will remain active, we present the complete contents of the site as a precaution against a loss of the on-line data.

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The massive eclipsing LMC Wolf-Rayet binary BAT99-129. 1 Orbital parameters, hydrogen content and spectroscopic characteristics

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Astronomy & Astrophysics, published (2006A&A...447..667F)

BAT99-129 in the LMC is one among a handful of extra-galactic eclipsing Wolf-Rayet binaries known. We present blue, medium-resolution, phase-dependent NTT-EMMI spectra of this system that allow us to separate the spectra of the two components of the binary and to obtain a reliable orbital solution for both stars. We assign an O5V spectral type to the companion, and WN3(h)a to the Wolf-Rayet component. We discuss the spectroscopic characteristics of the system: luminosity ratio, radii, rotation velocities. We find a possible oversynchronous rotation velocity for the O star. Surprisingly, the extracted Wolf-Rayet spectrum clearly shows the presence of blueshifted absorption lines, similar to what has been found in all single hot WN stars in the SMC and some in the LMC. We also discuss the presence of such intrinsic lines in the context of hydrogen in SMC and LMC Wolf-Rayet stars, WR+O binary evolution and GRB progenitors. Altogether, BAT99 129 is the extragalactic counterpart of the well-known Galactic WR binary V444 Cygni.

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FUSE and HST/STIS far-ultraviolet observations of AM Herculis in an extended low state

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Astrophysical Journal, in press (astro-ph/0511100)

We have obtained *FUSE* and *HST/STIS* time-resolved spectroscopy of the polar AM Herculis during a deep low state. The spectra are entirely dominated by the emission of the white dwarf. Both the far-ultraviolet (FUV) flux as well as the spectral shape vary substantially over the orbital period, with maximum flux occurring at the same phase as during the high state. The variations are due to the presence of a hot spot on the white dwarf, which we model quantitatively. The white dwarf parameters can be determined from a spectral fit to the faint phase data, when the hot spot is self-eclipsed. Adopting the distance of 79 ± 8 pc determined by Thorstensen, we find an effective temperature of 19800 ± 700 K and a mass of $M_{\text{wd}} = 0.78 \pm_{0.17}^{0.12} M_{\odot}$. The hot spot has a lower temperature than during the high state, $\sim 34000 - 40000$ K, but covers a similar area, $\sim 10\%$ of the white dwarf surface. Low state *FUSE* and *STIS* spectra taken during four different epochs in 2002/3 show no variation of the FUV flux level or spectral shape, implying that the white dwarf temperature and the hot spot temperature, size, and location do not depend on the amount of time the system has spent in the low state. Possible explanations are ongoing accretion at a low level, or deep heating – both alternatives have some weaknesses that we discuss. No photospheric metal absorption lines are detected in the *FUSE* and *STIS* spectra, suggesting that the average metal abundances in the white dwarf atmosphere are lower than $\sim 10^{-3}$ times their solar values.

Download/Website: <http://arxiv.org/abs/astro-ph/0511100>

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A ZZ Ceti white dwarf in SDSS J133941.11+484727.5

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Monthly Notices of the Royal Astronomical Society, published (2006MNRAS.365..969G)

We present time-resolved spectroscopy and photometry of the cataclysmic variable (CV) SDSS J133941.11+484727.5 (SDSS 1339) which has been discovered in the Sloan Digital Sky Survey Data Release 4. The orbital period determined from radial velocity studies is 82.524(24) min, close to the observed period minimum. The optical spectrum of SDSS 1339 is dominated to 90% by emission from the white dwarf. The spectrum can be successfully reproduced by a three-component model (white dwarf, disc, secondary) with $T_{\text{wd}} = 12500$ K for a fixed $\log g = 8.0$, $d = 170$ pc, and a spectral type of the secondary later than M8. The mass transfer rate corresponding to the optical luminosity of the accretion disc is very low, $\simeq 1.7 \times 10^{-13} M_{\odot}/\text{yr}$. Optical photometry reveals a coherent variability at 641 s with an amplitude of 0.025 mag, which we interpret as non-radial pulsations of the white dwarf. In addition, a long-period photometric variation with a period of either 320 min or 344 min and an amplitude of 0.025 mag is detected, which bears no apparent relation with the orbital period of the system. Similar long-period photometric signals have been found in the CVs SDSS J123813.73–033933.0, SDSS J204817.85–061044.8, GW Lib and FS Aur, but so far no working model for this behaviour is available.

Download/Website: <http://arxiv.org/abs/astro-ph/0510712>

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HST/STIS spectroscopy and modeling of the long term cooling of WZ Sagittae following the July 2001 outburst

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Astrophysical Journal, in press (astro-ph/0602167)

We present the latest *Hubble Space Telescope (HST) Space Telescope Imaging Spectrograph (STIS)* E140M spectrum of the dwarf nova WZ Sge, obtained in July 2004, 3 years following the early superoutburst of July 2001. This far-ultraviolet (FUV) spectrum covers the wavelength interval 1150–1725 Å, revealing Stark-broadened Ly α absorption and absorption lines due to metals from a range of ionization states. The Ly α and CIV double peak emissions are still present, indicating the presence of an optically thin disk. Single white dwarf synthetic spectral fits (using $\log g = 8.5$) to the data indicate that the white dwarf has now reached a temperature $T \approx 15,000 \pm 500$ K. Three years after the outburst the WD is still ~ 1500 K above its quiescent temperature, it has an FUV flux level almost twice its pre-outburst value, and its spectrum does not distinctly exhibit the quasi-molecular hydrogen feature

around 1400 Å which was present in the *IUE* and *HST/GHRS* pre-outburst data. This is a clear indication that even three years after outburst the system is still showing the effect of the outburst.

Taking into account previous temperature estimates obtained during the earlier phase of the cooling, we model the cooling curve of WZ Sge, over a period of three years, using a stellar evolution code including accretion and the effects of compressional heating. Assuming that compressional heating alone is the source of the energy released during the cooling phase, we find that (1) the mass of the white dwarf must be quite large ($\approx 1.0 \pm 0.2 M_{\odot}$); and (2) the mass accretion rate must have a time-averaged (over 52 days of outburst) value of the order of $10^{-8} M_{\odot} \text{yr}^{-1}$ or above. The outburst mass accretion rate derived from these compressional heating models is larger than the rates estimated from optical observations (Patterson et al. 2002) and from a FUV spectral fit (Long et al. 2003) by up to one order of magnitude. This implies that during the cooling phase the energy released by the WD is not due to compressional heating alone. We suggest that ongoing accretion during quiescence at a moderately low accretion rate can also release a significant amount of energy in the form of boundary layer irradiation, which can increase the temperature of the star by several thousand degrees.

Download/Website: <http://arxiv.org/abs/astro-ph/0602167>

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Multicolor Observations of ASAS 002511+1217.2

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IBVS 5611, 2005IBVS.5611....1G, astro-ph/0504528

We present multicolor CCD photometry of ASAS 002511+1217.2 for first 55 days of 2004 outburst.

Download/Website: <http://arxiv.org/abs/astro-ph/0504528>

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GSC 4232.2830, an Eclipsing Binary with Elliptical Orbit

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IBVS 5618, 2005IBVS.5618....1G, astro/0505449

The discovery of an Algol type eclipsing variable star having highly elliptical orbit with the period of 11.628 day is reported.

Download/Website: <http://arxiv.org/abs/astro-ph/0505449>

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XMM-Newton and Optical Follow-up Observations of SDSS J093249.57+472523.0 and SDSS J102347.67+003841.2

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Astronomical Journal, published (2006AJ...131..562H)

We report follow-up XMM-Newton and ground-based optical observations of the unusual X-ray binary SDSS J102347.67+003841.2 (=FIRST J102347.6+003841) and a new candidate intermediate polar (IP) found in the Sloan Digital Sky Survey: SDSS J093249.57+472523.0. SDSS J1023 was observed in its low state, with similar magnitude/color ($V=17.4$ and $B=17.9$) and smooth orbital modulation as seen in most previous observations. We further refine the ephemeris (for photometric minimum) to $\text{HJD}(\text{TT})_{\text{min}}=2,453,081.8546(3)+\text{E}0.198094(1)$ days. It is easily detected in X-rays at an unabsorbed flux (0.01-10.0 keV) of 5×10^{-13} ergs cm^{-2} s^{-1} . Fitting a variety of models we find that (1) either a hot ($kT > 15$ keV) optically thin plasma emission model (bremsstrahlung or MEKAL) or a simple power law can provide adequate fits to the data; (2) these models prefer a low column density $\sim 10^{19}$ cm^{-2} (3) a neutron star atmosphere plus power-law model (as found for quiescent low-mass X-ray binaries) can also produce a good fit (for plausible distances), although only for a much higher column $\sim 4 \times 10^{20}$ cm^{-2} and a very cool atmosphere ($kT_i \sim 50$ eV). These results support the case that SDSS J1023 is a transient LMXB and indeed place it in the subclass of such systems whose quiescent X-ray emission is dominated by a hard power-law component. Our optical photometry of SDSS J0932 reveals that it is a high-inclination eclipsing system. From our two epochs of data and seven eclipse times, we are able to derive a best-fit ephemeris for minimum light: $\text{HJD}(\text{TT})_{\text{min}}=2,453,122.2324(1)+\text{E}0.0661618(4)$ days, although aliases, with one cycle count different between epochs, are acceptable. The X-ray spectrum is well fit by either a hard bremsstrahlung or power law, with a partial covering absorption model, with a high covering fraction ~ 0.9 and column $\sim 10^{23}$ cm^{-2} . Combined with its optical characteristics-high i excitation emission lines and its brightness, yielding a large F_X/F_{opt} ratio-this highly absorbed X-ray spectrum argues that SDSS J0932 is a strong IP candidate. However, only more extensive optical photometry and a detection of its spin or spin-orbit beat frequency can confirm this classification.

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Discovery of a Promising Candidate of WZ Sge-Type Dwarf Novae, ASAS 160048-4846.2: Evidence for Double-Peaked Humps

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PASJ letter, in press (astro-ph/0511170)

We report on time-resolved CCD photometry during the 2005 June outburst of a dwarf nova, ASAS160048-4846.2. The observed light curves unambiguously showed embryonic humps with a period of 0.063381(41) days, after which genuine superhumps emerged with a period of 0.064927(3) days. Based on evidence for double-peaked humps in the earlier stage of the outburst, this object might be qualified as the seventh member of WZ Sge-type dwarf novae after Var Her 04. If the former period is the same as, or very close to the orbital period of the system, as in other WZ Sge systems, the fractional superhump excess is about 2.4%. This value is unexpectedly larger than that of other WZ Sge-type dwarf novae. The early phase of our observing run provided evidence for the transition from chaotic humps to genuine superhumps, together with increasing the amplitude.

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The 2003/2004 Superoutburst of SDSS J013701.06091234.9

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PASJ, in press(astro-ph/0510764)

We report on time-resolved photometry of the superoutburst of an SU UMa-type dwarf nova, SDSS J013701.06–091234.9, in 2003 December–2004 January. The obtained light curves definitely show superhumps with a period of 0.056686(12)d, which is one of the shortest superhump periods among those of SU UMa-type dwarf novae ever observed. Considering quiescent photometric studies, we estimated the fractional superhump excess to be 0.024. Spectroscopic observations by Szkody et al. (2003, AJ, 126, 1499) provided evidence for TiO bands despite the short orbital period, implying that the system has a luminous secondary star. We have drawn a color-color diagram of SU UMa-type dwarf novae in quiescence using 2MASS archives, revealing that the location of this star in the color-color diagram deviates from the general trend. The distance to the system was roughly estimated to be 300 ± 80 pc, using the empirical period-absolute magnitude relation and based on the proper motion.

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The 2005 July Superoutburst of the Dwarf Nova 2QZ J021927.9-304545: the SU UMa nature confirmed

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PASJ, in press (astro-ph/0602332)

We report on time-resolved photometry of the 2005 July superoutburst of the dwarf nova, 2QZ J021927.9-304545. The resultant light curves showed conspicuous superhumps with a period of 0.081113(19) days, confirming the SU UMa nature of the object. Although we missed the maximum phase of the outburst, the amplitude of the superoutburst well exceeded 5 mag. This value is slightly larger than that of typical SU UMa-type dwarf novae. The superhump period decreased as time elapsed, as can be seen in most SU UMa-type dwarf novae. Based on the archive of ASAS-3, the recurrence time of a superoutburst of the variable turned out to be about 400 days. This value is typical of well known SU UMa stars. The distance to this system was roughly estimated as 370(+20, -60) pc using an empirical relation.

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Continued Hyperactivity on the Secondary Star of AM Her

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The Astronomical Journal, in press (May 2006)

We present observations in the red region of the spectrum of the magnetic cataclysmic variable prototype AM Her during its 2005 low state. We confirm the unexpected structure of the H α emission line and verify most of the conclusions of our earlier study: the line is typically triple-peaked, and the radial velocity curve of all three components are phased with the radial velocities of absorption features from the photosphere of the M dwarf secondary star. The red and blue satellites of the central H α peak were interpreted in the earlier paper as arising from magnetically-confined gas motions in large, long-lived loop prominences on the secondary star; our new data are consistent with that conclusion. Furthermore, although the radial velocities of the strong central peak of the H α emission line suggested an origin from the irradiation-heated inner hemisphere of the secondary, the phase variation of the equivalent width of the line in this new data is inconsistent with such an interpretation. It is likely that the central component of H α has a significant contribution from stellar activity on the secondary star. Finally, simultaneous V-band photometry of the system was acquired during much of the spectroscopy, with the expectation that the ~ 0.6 mag flares seen in earlier data might be correlated with changes in H α . Although the strength of H α increased by $\sim 1.5\times$ on several brief occasions during the spectroscopy, no simultaneous photometric flaring was detected.

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Cyclotron emission from accretion plasma columns in magnetic cataclysmic variable stars

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Astronomy & Astrophysics, published (2005A&A...439..823K)

Pure cyclotron spectra of polars produced during their low accretion states are deduced. We used the working hypothesis that the cyclotron emission is produced by electrons spiraling down the dipole magnetic field lines and forming an accretion plasma column on top of the magnetic pole of a white dwarf. The velocity distribution function of electrons emitting cyclotron radiation is assumed to be a bi-Maxwellian. Since the radiating electrons in a million-Gauss magnetic field seek their respective magnetic mirrors, the perpendicular components of their velocity vectors are assumed to be greater than the parallel ones in the radiation region. This assumption implies that the cyclotron radiation is emitted more or less in the perpendicular direction (to the local magnetic field). Then we investigated the contribution of the ordinary and the extraordinary wave modes to the luminosity. The model predictions seem to be consistent with observations. We present the model cyclotron spectra of a randomly chosen polar, UZ For, as a case study.

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Detection of orbital and superhump periods IN Nova V2574 Ophiuchi (2004)

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Astronomical Journal, in press (astro-ph/0512483)

We present the results of 37 nights of CCD unfiltered photometry of nova V2574 Oph (2004) from 2004 and 2005. We find two periods of 0.14164 days (~ 3.40 hr) and 0.14773 days (~ 3.55 hr) in the 2005 data. The 2004 data show variability on a similar timescale, but no coherent periodicity was found. We suggest that the longer periodicity is the orbital period of the underlying binary system and that the shorter period represents a negative superhump. The 3.40 hr period is about 4% shorter than the orbital period and obeys the relation between superhump period deficit and binary period. The detection of superhumps in the light curve is evidence of the presence of a precessing accretion disk in this binary system shortly after the nova outburst. From the maximum magnitude-rate of decline, we estimate the decay rate $t_2 = 17 \pm 4$ days and a maximum absolute visual magnitude of $M_{V_{max}} = -7.7 \pm 1.7$ mag.

Download/Website: <http://arxiv.org/abs/astro-ph/0512483>

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Irradiated atmospheres of accreting magnetic white dwarfs with an application to the polar AM Herculis

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Astronomy & Astrophysics, in press (astro-ph/0512566)

We present a pilot study of atmospheres of accreting magnetic white dwarfs irradiated by intense fluxes at ultraviolet to infrared wavelengths. The model uses a standard LTE stellar atmosphere code which is expanded by introducing an angle-dependent external radiation source. The present results are obtained for an external source with the spectral shape of a 10000 K blackbody and a freely adjustable spectral flux. The model provides an explanation for the observed largely filled-up Lyman lines in the prototype polar AM Herculis during its high states. It also confirms the hypotheses (i) that irradiation by cyclotron radiation and other radiation sources is the principle cause for the large heated polar caps surrounding the accretion spots on white dwarfs in polars and (ii) that much of the reprocessed light appears in the far ultraviolet and not in the soft X-ray regime as suggested in the original simple theories. We also briefly discuss the role played by hard X-rays in heating the polar cap.

Download/Website: <http://arxiv.org/abs/astro-ph/0512566>

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The effect of dust obscuration in RR Tel on optical and IR long-term photometry and Fe II emission lines

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Astronomy & Astrophysics, in press

Aims: Infrared and optical photometric and spectroscopic observations of the symbiotic nova RR Tel are used to study the effects and properties of dust in symbiotic binaries containing a cool Mira component, as well as showing "obscuration events of increased absorption, which are typical for such Miras. **Methods:** A set of observations of the symbiotic nova RR Tel in different wavelength bands - visual from 1949 to 2002 and near infrared (JHKL) from 1975 to 2002 - are presented. The variability due to normal mira pulsations was removed from the JHKL data, which were then compared with the American Association of Variable Star Observers' (AAVSO) visual light curve. The changes in the Fe II emission line fluxes during the 1999-2000 obscuration episode were studied in the optical spectra taken with the Anglo-Australian telescope. **Results:** We discuss the three periods during which the Mira component was heavily obscured by dust as observed in different wavelength bands. A change in the correlations of J with other infra-red magnitudes was observed, with the colours becoming redder after JD2446000. Generally, J-K was comparable, while K-L was larger than typical values for single Miras. A distance estimate of 2.5 kpc, based on the IR data, is given. A larger flux decrease for the permitted than for the forbidden Fe II lines, during the obscuration episode studied, has been found. There is no evidence for other correlations with line properties, in particular with wavelength, which suggests obscuration due to separate optically thick clouds in the outer layers.

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Unveiling the nature of *INTEGRAL* objects through optical spectroscopy. II. The nature of four unidentified sources

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Astronomy & Astrophysics, in press (astro-ph/0511182)

We present new results from our optical spectrophotometric campaign ongoing at the Astronomical Observatory of Bologna in Loiano (Italy) on hard X-ray sources detected by *INTEGRAL*. We have observed spectroscopically the putative optical counterparts of four more *INTEGRAL* sources, IGR J12391–1610, IGR J18406–0539, 2E 1853.7+1534 and IGR J19473+4452. These data have allowed us to determine their nature, finding that IGR J12391–1610 (=LEDA 170194) and IGR J19473+4452 are Seyfert 2 galaxies at redshifts $z = 0.036$ and $z = 0.053$, respectively, IGR J18406–0539 (=SS 406) is a Be massive X-ray binary located at ~ 1.1 kpc from Earth, and 2E 1853.7+1534 is a Type 1 Seyfert galaxy with $z = 0.084$. Physical parameters for these objects are also evaluated by collecting and discussing the available multiwavelength information. The determination of the extragalactic nature

of a substantial fraction of sources inside the *INTEGRAL* surveys underlines the importance of hard X-ray observations for the study of background Active Galactic Nuclei located beyond the ‘Zone of Avoidance’ of the Galactic Plane.

Download/Website: <http://arxiv.org/abs/astro-ph/0511182>

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Unveiling the nature of *INTEGRAL* objects through optical spectroscopy. III. Observations of seven southern sources

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Astronomy & Astrophysics, in press (astro-ph/0512399)

In our continuing optical spectroscopic campaign to identify the longer-wavelength counterparts of newly-discovered hard X-ray sources detected by *INTEGRAL*, we observed the putative optical counterparts of seven southern sources at the South African Astronomical Observatory and at the European Southern Observatory. For two of these objects, optical photometry was also acquired. These observations firmly established the nature of four of them: we found that IGR J10404–4625 (=LEDA 93974), 4U 1344–60 and IGR J16482–3036 are Active Galactic Nuclei (AGNs) at redshifts $z = 0.0237$, 0.013 and 0.0313 , respectively, and that 2RXP J130159.6–635806 is a Galactic High-Mass X-ray Binary (HMXB). We also give possible optical identifications for three further objects, namely IGR J11215–5952, IGR J11305–6256 and IGR J16207–5129, which are consistent with being Galactic HMXBs. Physical parameters for these objects are also evaluated by collecting and discussing the available multi-wavelength information. The detection of four definite or likely HMXBs out of seven objects in our sample further stresses *INTEGRAL*’s crucial contribution in hunting this class of objects. Also, the determination of the extragalactic nature of a substantial fraction of the *INTEGRAL* survey sources underlines the importance of hard X-ray observations for the study of background AGNs located beyond the ‘Zone of Avoidance’ of the Galactic Plane.

Download/Website: <http://arxiv.org/abs/astro-ph/0512399>

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SDSSJ212531.92-010745.9 - the first definite PG1159 close binary system

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Astronomy & Astrophysics, in press (astro-ph/0601512)

The archival spectrum of SDSS J212531.92–010745.9 shows not only the typical signature of a PG 1159 star, but also indicates the presence of a companion. Our aim was the proof of the binary nature of this object and the determination of its orbital period. We performed time-series photometry of SDSS J212531.92–010745.9. We observed the object during 10 nights, spread over one month, with the Tübingen 80 cm and the Göttingen 50 cm

telescopes. We fitted the observed light curve with a sine and simulated the light curve of this system with the `nightfall` program. Furthermore, we compared the spectrum of SDSS J212531.92–010745.9 with NLTE models, the results of which also constrain the light curve solution. An orbital period of 6.95616(33)h with an amplitude of 0.354(3)mag is derived from our observations. A pulsation period could not be detected. For the PG 1159 star we found, as preliminary results from comparison with our NLTE models, $T_{\text{eff}} \sim 90\,000$ K, $\log g \sim 7.60$, and the abundance ratio C/He ~ 0.05 by number fraction. For the companion we obtained with a mean radius of $0.4 \pm 0.1 R_{\odot}$, a mass of $0.4 \pm 0.1 M_{\odot}$, and a temperature of 8 200 K on the irradiated side, good agreement between the observed light curve and the `nightfall` simulation, but we do not regard those values as final.

Download/Website: <http://arxiv.org/format/astro-ph/0601512>

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Steps towards a solution of the FS Aurigae puzzle - I. Multicolour high-speed photometry with ULTRACAM

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Monthly Notices of the Royal Astronomical Society, published (2005MNRAS.362.1472N)

We present the analysis of high-speed photometric observations of FS Aurigae taken with the 4.2-m William Herschel Telescope and the high-speed camera ULTRACAM in late 2003. These observations were intended to determine whether there was any evidence of photometric variability with a period in the range 50–100 s. The discovery of such variations would help to explain the existence, in FS Aur, of the very coherent photometric period of 205.5 min that exceeds the spectroscopic period by 2.4 times. Such a discrepancy in the photometric and spectroscopic periods is unusual for a low-mass binary system that is unambiguously identified as a cataclysmic variable. Using various methods, including wavelet analysis, we found that with exception of the 205.5-min periodicity, the main characteristic of variability of FS Aur is usual flickering and quasi-periodic oscillations. However, we detected variability with a period of 101 and/or 105 s, seen for a short time every half of the orbital period. These oscillations may be associated with the spin period of the white dwarf (WD), not ruling out the possibility that we are observing a precessing rapidly rotating WD in FS Aur.

Download/Website: <http://dx.doi.org/10.1111/j.1365-2966.2005.09423.x>

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The periods of the intermediate polar RX J0153.3+7446

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Astronomy & Astrophysics, 447(2), L17, published (2006A&A...447L..17N)

We present the first optical photometry of the counterpart to the candidate intermediate polar RX J0153.3+7446. This reveals an optical pulse period of 2333 ± 5 s. Reanalysis of the previously published *ROSAT* X-ray data reveals that the true X-ray pulse period is probably 1974 ± 30 s, rather than the 1414 s previously reported. Given that the previously noted orbital period of the system is 3.94 h, we are able to identify the X-ray pulse period with the white dwarf spin period and the optical pulse period with the rotation period of the white dwarf in the binary reference frame, as commonly seen in other intermediate polars. We thus confirm that RX J0153.3+7446 is indeed a typical intermediate polar.

Download/Website: <http://physics.open.ac.uk/~ajnorton/papers/rxj0153.pdf>

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The disk instability model for dwarf nova outbursts

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Proceedings of the Japan Academy, Ser. B, 2005, 81, 291-305, published (2005PJAB...81..291O)

The development and the present state of the disk instability model for outbursts of dwarf nova are reviewed. Two intrinsic instabilities are known in dwarf nova accretion disks, i.e., the thermal instability and the tidal instability. The thermal-tidal instability model (abbreviated the TTI model) that combines these two intrinsic instabilities was first proposed in 1989 by Osaki to explain the superoutburst phenomenon of SU UMa stars. In this paper a complete account of the TTI model is presented. We first explain the basic concept of the model and how it works for the superoutburst phenomenon. We then discuss recent refinements of the model, in particular on the start and the end of superoutbursts, by which we are now able to explain wide varieties in superoutburst light curves of different stars and of different superoutbursts within one and the same star. We also discuss some exceptional cases that apparently seem to contradict the theory, such as the 1985 superoutburst of U Gem itself. It is argued that the TTI model can after all explain most of the observed phenomena related to superoutbursts and superhumps in dwarf novae.

Download/Website: http://www.jstage.jst.go.jp/browse/pjab/81/8/_contents

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A tomographic study of the classical nova RR Pic

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Publications of the Astronomical Society of the Pacific, published (2006PASP..118...84R)

We present the results of spectrophotometric observations of the old nova RR Pic performed in two spectral ranges, one centered in the H α line and other covering H β and H γ spectral lines. From the H β radial velocity study we found a primary radial semi-amplitude of $K_1 = 37(1) \text{ km s}^{-1}$ and a systemic velocity of $\gamma = 1.8(2) \text{ km s}^{-1}$. With this new values a mass diagram is constructed, constraining the possible mass intervals for the system. The possible orbital inclination range was restricted using the fact that RR Pic presents shallow eclipses. A secondary mass range below the limit of a main sequence star filling its Roche lobe indicate an evolved companion. We also calculated the H α , H β , H γ , HeI 6678 and HeII 4686 Doppler tomograms. The most conspicuous differences are found between the HeI and HeII tomograms, the former has a ring shape, while the second is filled at low velocities, suggesting that the low velocity emission is not coming from the accretion disk. Radial emissivity profiles for these lines were also derived.

Download/Website: <http://arxiv.org/abs/astro-ph/0510042>

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Doppler tomography of the asynchronous polar BY Camelopardalis

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Astronomy & Astrophysics, published (2005A&A...444..213S)

We present phase-resolved, high-resolution (1.3 Å) spectroscopy of the brightest near-synchronous polar BY Cam taken on two different occasions in 1998 and 1999. The first tomographic study of such a system reveals line emission spread out over a large velocity range forming a crescent at negative v_y velocities in the Doppler maps. In contrast to the majority of synchronous AM Her systems there is only weak indication for the presence of a focused accretion stream. These two facts suggest that the majority of the matter is accreted via an extended curtain. Location and extent of the structure in the Doppler maps can be reproduced with a simple curtain model raised over a wide ($\sim 180^\circ$) range in azimuth implying that the ballistic stream stretches to a point far behind the white dwarf. In order to reach such small magnetospheric radii mass accretion rates a factor of 10 to 20 in excess of that normally seen in polars would be required. In addition to the curtain emission, the Balmer lines show a narrow emission line component likely originating from the heated side of the secondary star. Its velocity amplitude of 190km s^{-1} together with an illumination model of the secondary star suggests a rather heavy white dwarf of $M_1 \geq 0.8M_\odot$ and an inclination larger than $i \geq 40^\circ$. Timings of this feature in the present and historical data unequivocally determine the orbital period and have been used to establish a high-precision, long-term ephemeris.

Download/Website: <http://aanda.u-strasbg.fr:2002/articles/aa/pdf/2005/46/aa3711-05.pdf>

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A 110 MG cyclotron harmonic in the optical spectrum of RXJ1554.2+2721

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Astron. Astrophys., in press (astro-ph/0603087)

We report the detection of a 110 MG cyclotron harmonic in the SDSS-spectrum of the magnetic cataclysmic variable (MCV) RX J1554.2+2721. This feature was noted earlier by others but remained unexplained. The wide spectral coverage of the new spectrum together with the earlier detection of a Zeeman split Ly α line in a field of 144 MG makes the identification almost unambiguous. We propose to explain the non-conforming UV-optical photospheric temperature of the white dwarf by an as yet unobserved cyclotron component in the ultraviolet which also could significantly contribute to the overall energy balance of the accretion process.

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The first direct spectroscopic detection of a white dwarf primary in an AM CVn System

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Astrophysical Journal Letters, published (2006ApJ...636L.125S)

We report the results of a synthetic spectral analysis of Hubble STIS spectra of the AM CVn-type cataclysmic variable CP Eri obtained when the system was in quiescence. The FUV spectrum is best fitted by a helium-dominated, hybrid composition (DBAZ) white dwarf with $T_{eff} \sim 17,000K \pm 1000K$, $\log g \sim 8$, He abundance $\sim 1000 \times$ solar, H abundance $\sim 0.1 \times$ solar, metallicity $Z \sim 0.05 \times$ solar, $V \sin i \sim 400 \text{ km/s} \pm 100 \text{ km/s}$. This is the first directly detected primary white dwarf in any AM CVn and the surface abundance and rotation rate for the white dwarf primary are the first to be reported for AM CVn systems. The model-predicted distance is $\sim 1000 \text{ pc}$. The spectral fits using pure He photospheres or He-rich accretion disks were significantly less successful. Based upon the analysis of our FUV spectra, CP Eri appears to contain a hybrid composition DBAZ white dwarf with a metallicity which sets it apart from the other two AM CVn stars which have been observed in quiescence and are metal-poor. The implications of this analysis for evolutionary channels leading to AM CVn systems are discussed.

Download/Website: <http://arxiv.org/abs/astro-ph/0602119>

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Numerical Simulations of the Onset and Stability of Dynamical Mass Transfer in Binaries

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Astrophysical Journal, in press (astro-ph/0512137)

Hydrodynamical simulations of semi-detached, polytropic binary stars are presented in an effort to study the onset and stability of dynamical mass transfer events. Initial, synchronously rotating equilibrium models are constructed using a self-consistent-field technique and then evolved with an Eulerian hydrodynamics code in a fully self-consistent manner. We describe code improvements introduced over the past few years that permit us to follow dynamical mass-transfer events through more than 30 orbits. Mass-transfer evolutions are presented for two different initial configurations: A dynamically unstable binary with initial mass ratio (donor/accretor) $q_0 = 1.3$ that leads to a complete merger in ~ 10 orbits; and a double-degenerate binary with initial mass ratio $q_0 = 0.5$ that, after some initial unstable growth of mass transfer, tends to separate as the mass-transfer rate levels off.

Download/Website: <http://arxiv.org/astro-ph/0512137>

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Cataclysmic Variables from SDSS V. The Fifth Year (2004)

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Astronomical Journal, published (2006AJ...131..973S)

This paper identifies the cataclysmic variables that appear in spectra obtained in 2004 as part of the Sloan Digital Sky Survey. Spectra of 41 objects, including 7 systems which were previously known (CC Cnc, DW Cnc, PQ Gem, AR UMa, AN UMa, RXJ1131.3+4322, UMa 6) and 34 new cataclysmic variables are presented. The positions and ugriz photometry of all 41 systems are given, as well as additional follow-up spectroscopic, photometric and/or polarimetric observations of eight of the new systems. The new objects include three eclipsing systems, six with prominent He2 emission, and six systems that show the underlying white dwarf.

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The Recently-Discovered Dwarf Nova System ASAS J002511+1217.2: A New WZ Sge Star

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Publications of the Astronomical Society of the Pacific, in press (astro-ph/0510078)

The cataclysmic variable ASAS J002511+1217.2 was discovered in outburst by the All-Sky Automated Survey in September 2004, and intensively monitored by AAVSO observers through the following two months. Both photometry and spectroscopy indicate that this is a very short-period system. Clearly defined superhumps with a period of 0.05687 +/- 0.00001 days (1-sigma) are present during the superoutburst, 5 to 18 days following the ASAS detection. We observe a change in superhump profile similar to the transition to "late superhumps" observed in other short-period systems; the superhump period appears to increase slightly for a time before returning to the original value, with the resulting superhump phase offset by approximately half a period. We detect variations with a period of 0.05666 +/- 0.00003 days (1-sigma) during the four-day quiescent phase between the end of the main outburst and the single echo outburst. Weak variations having the original superhump period reappear during the echo and its rapid decline. Time-resolved spectroscopy conducted nearly 30 days after detection and well into the decline yields an orbital period measurement of 82 +/- 5 minutes. Both narrow and broad components are present in the emission line spectra, indicating the presence of multiple emission regions. The weight of the observational evidence suggests that ASAS J002511+1217.2 is a WZ Sge-type dwarf nova, and we discuss how this system fits into the WZ classification scheme.

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The decline and fall of GRS 1915+105: the end is nigh?

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Monthly Notices of the Royal Astronomical Society, in press (astro-ph/0601364)

The galactic microquasar GRS 1915+105 has been in a continuous state of outburst since 1992, over 20 times longer than any other black hole X-ray transient. Assuming that the outburst is powered via accretion of an irradiated gaseous disc, we calculate how the predicted outburst duration varies according to the efficiency of the self-irradiation mechanism. At least one current model leads to the conclusion that the end of the outburst is imminent. The timing of the decline of GRS 1915+105, whenever it arrives, will be an excellent discriminator of the self-irradiation mechanism in X-ray transients, allowing us to infer the fraction of the disc that is heated by the incident X-rays and the magnitude of the mass loss rate in the form of a wind.

Download/Website: <http://star-www.dur.ac.uk/mrt/publications.html>

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Angular momentum losses and the orbital period distribution of cataclysmic variables below the period gap: effects of circumbinary disks

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Astrophysical Journal, published (2005ApJ...635.1263W)

The population synthesis of cataclysmic variable binary systems at short orbital periods (< 2.75 hrs) is investigated. A grid of detailed binary evolutionary sequences has been calculated and included in the simulations to take account of additional angular momentum losses beyond that associated with gravitational radiation and mass loss, due to nova outbursts, from the system. As a specific example, we consider the effect of a circumbinary disk to gain insight into the ingredients necessary to reproduce the observed orbital period distribution. The resulting distributions show that the period minimum lies at about 80 minutes with the number of systems monotonically increasing with increasing orbital period to a maximum near 90 minutes. There is no evidence for an accumulation of systems at the period minimum which is a common feature of simulations in which only gravitational radiation losses are considered. The shift of the peak to about 90 minutes is a direct result of the inclusion of systems formed within the period gap. The period distribution is found to be fairly flat for orbital periods ranging from about 85 to 120 minutes. The steepness of the lower edge of the period gap can be reproduced, for example, by an input of systems at periods near 2.25 hrs due to a flow of cataclysmic variable binary systems from orbital periods longer than 2.75 hrs.

The good agreement with the cumulated distribution function of observed systems within the framework of our model indicates that the angular momentum loss by a circumbinary disk or a mechanism which mimics its features coupled with a weighting factor to account for selection effects in the discovery of such systems and a flow of systems from above the period gap to below the period gap are important ingredients for understanding the overall period distribution of cataclysmic variable binary systems.

Download/Website: <http://www.journals.uchicago.edu/ApJ/journal/issues/ApJ/v635n2/62624/62624.html>

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VLT spectroscopy and non-LTE modeling of the C/O-dominated accretion disks in two ultracompact X-ray binaries

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A&A, in press (astro-ph/0601546)

We present new medium-resolution high-S/N optical spectra of the ultracompact low-mass X-ray binaries 4U0614+091 and 4U1626-67, taken with the ESO Very Large Telescope. They are pure emission line spectra and the lines are identified as due to C II-IV and O II-III. Line identification is corroborated by first results from modeling the disk spectra with detailed non-LTE radiation transfer calculations. Hydrogen and helium lines are lacking in the observed spectra. Our models confirm the deficiency of H and He in the disks. The lack of neon lines suggests a Ne abundance of less than about 10 percent (by mass), however, this result is uncertain due to possible shortcomings in the model atom. These findings suggest that the donor stars are eroded cores of C/O white dwarfs with no excessive neon overabundance. This would contradict earlier claims of Ne enrichment concluded from X-ray observations of circumbinary material, which was explained by crystallization and fractionation of the white dwarf core.

Download/Website: http://astro.uni-tuebingen.de/publications/paper_06_01.shtml

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Basic physical properties of the low-temperature contact binary system V781 Tau and the near-contact binary system V836 Cyg

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Monthly Notices of the Royal Astronomical Society, published (2005MNRAS.363.1272Y)

We present a detailed photometric study of the low-temperature contact binary V781 Tau, and the near-contact binary V836 Cyg. We have combined the parameters obtained from the light-curve analysis with those found by the spectral studies and we have determined the orbital and physical parameters of the stars. We have collected the times of the mid-eclipses obtained so far and combined with the times obtained in this study. By analysing all these data we determined the mass transfer rate from the massive star to the less massive one for V781 Tau, and from the less massive component to the massive one in the case of V836 Cyg. Finally, we have compared the results obtained for V781 Tau and for V836 Cyg with similar systems.

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Time-resolved observations of the short period CV SDSS J123813.73-033933.0

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Astron. & Astrophys., in press

We observed a new and poorly studied cataclysmic variable (CV) SDSS J123813.73-033933.0 to determine its classification and binary parameters. Simultaneous time-resolved photometric and spectroscopic observations were carried out to conduct period analysis and Doppler tomography mapping. From radial velocity measurements of the H β line we determined its orbital period to be 0.05592 0.00035 days (80.53min). This period is longer than the first estimate of 76 min by Szkody et al. (2003), but still at the very edge of the period limit for hydrogen-rich CVs. The spectrum shows double-peaked Balmer emission lines flanked by strong broad Balmer absorption, indicating a dominant contribution by the white dwarf primary star, and is similar to the spectra of short-period low-mass transfer WZ Sge-like systems. The photometric light curve shows complex variability. The system undergoes cyclic brightening up to 0.4 mags, which are of semi-periodic nature with periods of the order of 8-12 hours. We also detect a 40.25 min variability of ~ 0.15 mag corresponding to half of the orbital period. Amplitude of the latter increases with the cyclic brightening of the system. We discuss the variable accretion rate and its impact on the hot spot as the most probable reason for both observed processes. SDSS J123813.73-033933.0 is preliminary classified as a WZ Sge-like short period system with low and unstable accretion rate.

Download/Website: http://www.edpsciences.org/articles/aa/pdf/forthpdf/aa3597-05_forth.pdf

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3 Other abstracts

Open European Journal on Variable stars

L. Brát

Variable Star Section of Czech Astronomical Society, P.O.Box 23, 542 21 Pec pod Sněžkou, Czech Republic

Let us introduce new electronic journal for any studies/results on variable stars — *Open European Journal on Variable stars* (alias OEJV). This journal has been created to satisfy those researchers/observers, who's papers are denied by other journals. We accept all serious papers, it does not matter if they are based on visual or CCD observation. The journal's name contains word "European" because of geographical reason, but we accept papers of all authors all-around the world. Language of the paper can be English, French, German, Spanish or Czech. English abstract and pictures/tables description is required.

The OEJV is non-refereed journal, but it is included in Smithsonian/NASA's ADS. All recieved papers are published "as it is". You can post/find there tables with extrema of brightness of variable stars — times of minima of eclipsing binaries, times of maxima of RR Lyr stars, results obtained using both visual and CCD observation, etc. Anybody can publish here his/her observation results or studies, it does not matter if it is visual or CCD. We receive and expose publication in Adobe PDF format. Exact design of the publication depends only on the author, we do not modify any publication anyhow. The content guarantees the author only. Authors can submit their papers on-line via our web form. OEJV has some new features in astrophysic publications: (1) any reader can send his/her comment to both OEJV portal and to authors email; (2) readers can vote about quality of the paper.

OEJV is supported by Variable Star Section of Czech Astronomical Society (domain, people) and Masaryk University in Brno, Czech republic (the server is located there). The Open European Journal on Variable stars is registered as continuous electronic journal ISSN 1801-5964.

Download/Website: <http://var.astro.cz/oejv>

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On the Question of the Behavior of O-C Residuals of the Active Algol-Like Binary RZ Cassiopeiae

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JAAVSO, vol. 34, in press, astro-ph/0511213

We present an analysis of the RZ Cassiopeia O-C diagram for a 30-year period, based on data published by the AAVSO. The new parabolic light-elements are determined and \dot{P} was estimated. This enabled us to establish the value of \dot{M} , the rate of the mass transfer between components of this eclipsing binary. Deviations from the parabola in the RZ Cas O-C diagram have a wavelike trend. The pulsation of the primary component influences the scatter of O-C points, as well as it influences the shape of the eclipse. Some physical points on such O-C behavior are presented.

Download/Website: <http://arxiv.org/abs/astro-ph/0511213>

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The New W UMa-Type Variable GSC 04370-00206

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The Astronomer, 2005, vol. 41, No. 492, 323-325

GSC 04370-00206 (06h25m58.2s, +73 31'15.4"), which is located in the field of the intermediate polar 1RXS J062518.2+733433, has been classified as the EW-type variable with Min.HJD=2453062.17715(11)+0.4421(18) and a magnitude range 13.05-13.46 (R). Complementary methods for parameter determination in a case of incomplete light curve have been discussed. A short "discovery report" is available at .

Download/Website: <http://uavso.pochta.ru/TA492.pdf>

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New pulsating White Dwarfs in Cataclysmic Variables

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Looking Inside Stars, E.G. Meistas and J.E.Solheim eds., Vilnius 2006, published, pp49-61 (ISBN-9986-9332-5-0)

Since the discovery of the first non-radially pulsating white dwarf in a cataclysmic variable, GW Librae, six more have been found. We have observed two additional candidates, SDSS 1339 and SDSS 1514, which we have identified as CV/ZZ Ceti hybrids with low mass-transfer rates. In this article we present the results of remote observations of these targets performed with NOT during the Nordic-Baltic Research School at Molėtai Observatory, and follow-up observations executed by NOT in service mode.

The results of our observations show that the main pulsation frequencies agree with those found in previous CV/ZZ Ceti hybrids. Non-radially pulsating white dwarfs in cataclysmic variables might be more common than currently recognized.

Download/Website: <http://www.itpa.lt/mao/nofa2005/StudentPages/sch2005b.pdf>

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New pulsating White Dwarfs in Cataclysmic Variables

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Looking Inside Stars, E.G. Meistas and J.E.Solheim eds., Vilnius 2006, published, pp 63-67 (ISBN-9986-9332-5-0)

We observed the cataclysmic variables (CVs) SDSS J1501 and SDSS J1507 using the Nordic Optical Telescope (NOT), which was operated remotely from the Molėtai Observatory in Lithuania during the nights to the 16th and 17th of August 2005. Our aim was to look for pulsations in the white dwarf primaries of the systems. None of the white dwarfs showed pulsations, but since both of the CVs went into eclipses during the observations we were able to put limits on several important system parameters from the light curves.

Download/Website: <http://www.itpa.lt/mao/nofa2005/StudentPages/sch2005b.pdf>

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4 Conference announcements

International Conference "Interacting Binary Stars", Odessa, Ukraine, August 20-24, 2007

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IAU Symposium, submitted

The conference will be held in Odessa, Ukraine, on August 20-24, 2007 and will be dedicated to the memory of Prof. Vladimir Platonovich TSESEVICH (1907-1983), the prominent scientist, lecturer and organizer of science. He was an author of 750 publications, 10 monographs for professionals and amateurs, among them: "What and how to observe at the sky" (6 editions), "Variable stars and observations of them", "Eclipsing Binary Stars", "RR Lyr - type stars", "RW Tau - type Stars" et al. In 1944-1983, he was a director of the Astronomical Observatory (and a head of the Department of Astronomy of the Physical Faculty) of the Odessa State (now National) University. Under his supervision, the "Sky Patrol" has been organized, which contains ~ 100,000 plates in pg and pv systems.

We have applied to the IAU to make this an IAU conference. The preliminary topics of the conference:

- Memorial session
- Accretion onto gravimagnetic rotators (polars, synchronizing polars, intermediate polars, systems with neutron stars)
- Accretion and Positive vs Negative Superhumps in Dwarf Novae vs Nova-like cataclysmic stars
- Symbiotic, WR, double-degenerate and X-ray binaries
- "Classical" eclipsing binaries

- Physical variability of components from seconds to decades (with a special attention to white dwarfs, Delta Scuti, semi-regular and Mira-type pulsators, flare and Nova events, solar-type activity)
- Multiple stellar systems and extrasolar planets
- Advanced Methods for Observations and Mathematic Modeling
- Inter-Longitude Astronomy Projects and Large Surveys
- Interacting Binary Stars, Astronomy with Small Telescopes and Astronomical Education
- High-Energy Astrophysics of Binary Stars (columns, jets, outflows and very high energy emission)

If interested, please send a pre-registration form.

Before the conference IBS-2007, there will be a more wide conference "Modern problems of Astronomy" (August 12-18, 2007, Odessa, Ukraine) dedicated to other directions of astronomy in Odessa: pulsating variables, spectral studies, radio-sources, astrometry and near-Earth Astronomy, meteors, telescopes, data processing, astronomical education. The working languages of this conference will be English, Russian and Ukrainian.

Download/Website: ibs2007.pochta.ru

Contact: [ibs2007 @ pochta.ru](mailto:ibs2007@pochta.ru)

The XIV Young Scientists' Conference on Astronomy and Space Physics

*A. Golovin*¹

Kyiv National Taras Shevchenko University Dear Colleagues!

Department of Astronomy & Space Physics and Student Science Association announces the 14th Open Young Scientists' Conference on Astronomy and Space Physics section. The conference will take place at the Kyiv National Taras Shevchenko University on April 24-27, 2007.

The conference is intended for participation of students, post-graduate students, lecturers, researchers and leading scientists who are involved in research in one of the following fields:

astrophysics, astrometry, cosmology, radio-astronomy, solar physics, physics of comets and minor bodies, geophysics, physics of Solar System, physics of the near space, plasma physics, solar-terrestrial connections or related to the mentioned above. During the Conference each participant should present short report (10 minutes). Besides the students' reports, invited lectures by the leading Ukrainian and foreign scientists are planned.

Participants can present their reports using either multimedia projector or projector for transparent films.

Working language of YSC' 14 is English!

The conference meeting will be divided into the different sessions in accordance with their topics and it consists of the thematic invited lectures and short reports of the young scientists. Conference program will be placed on this site before the conference. It will include such sections: Solar Physics, Physics of Solar System, Astrometry, Astrophysics, Cosmology, Plasma Physics, Space Physics.

Conference program includes the excursions to Main Astronomical Observatory of NASU, Kyiv Astronomical Observatory of National Shevchenko University and Kyiv Planetarium, excursion by the city and reception.

Registration fees for the conference are:

- 50 USD
- 20 USD for Former Soviet Union participants
- 50 UAH for the participants from Ukraine

Registration fee includes conference materials and coffee breaks.

The accommodation is at University hotel just near the University (10 minutes from the University). If you want to come but prefer alternative accommodation, let us know asap.

In order to participate in the conference it is necessary to submit information about yourself (name, address, institution, affiliation, etc.) along with a short abstract of your report.

Deadline for the submission is March, 5, 2007.

Conferences for young scientists are held traditionally at Kyiv National Taras Shevchenko University for many years. Leading scientists in the field of astronomy and space physics, researchers, post-graduate students, lecturers, students all over the world participated in Open Young Scientists' Conference. This was achieved through the efforts by Student Science Association and initiative students of Kyiv Shevchenko University. The opportunity to invite more young scientists to our Conference is very pleasant to us. The conference is supported by Astronomy and Space Physics Department.

Purpose: The aim of the Open Young Scientists' Conference is to provide young scientists and students the possibility to communicate and present their scientific work. The other important goal is to promote international collaboration among young scientists in astronomy and space physics.

Location: Kyiv - the capital of Ukraine is very nice in spring. Kyiv is a very green city and one of the oldest and most charming cities of Europe. Kyiv is known for its attractive parks and famous main boulevard, Khreshchatik street. The central area of the city lies on the hilly western bank of the Dnieper. There, buildings dating from the Middle Ages of the present stand near each other. Landmarks of Kyiv include St. Sophia's cathedral and The Golden Gate of Yaroslav the Wise, both completed in 1037. The Monastery of the Caves, which has a network of catacombs (underground buried tunnels), also dates from Middle Ages. The Mariinsky Palace and the Church of St. Andrew, both built during the mid-1700's, are important examples of the architecture of that period. During the past years Kyiv regenerated. Main streets and squares were reconstructed and new attractive monuments were building. And now Kyiv is wonderful as never been! More complete information about our city you can find at: <http://www.allkiev.kiev.ua/>

Fields: Astrophysics, astrometry, radio-astronomy, solar physics, physics of comets and minor bodies, physics of Solar System, physics of the near space, geophysics, plasma physics, cosmology or related to the mentioned above.

Working language: English

Address: YSC14, POBox 7, Kyiv-22, 03022 Ukraine E-mail: ysc@univ.kiev.ua Phone: +(380) 44-526-44-57 Fax: +(380) 44-526-45-07 <http://ysc.kiev.ua/>

We look forward to see you in Kyiv!

Download/Website: <http://www.ysc.kiev.ua>

Contact: astronom _ 2003@mail.ru, ysc@univ.kiev.ua

5 Jobs and positions

Post Doctoral Research Assistant at the University of Warwick

T. Marsh

Department of Physics, University of Warwick, Coventry CV4 7AL, UK

This PPARC-funded project is in the area of close binary and pulsating stars with a focus upon high time-resolution observations made using the high-speed multi-band CCD camera ULTRACAM and related instruments. You should hold, or be about to obtain, a PhD in astronomy. You may have experience in observing with ground-based optical/infra-red telescopes and familiarity with the reduction and analysis of spectroscopic and photometric data. You should hold, or be about to obtain, a PhD in astronomy. You may have experience in observing with ground-based optical/infra-red telescopes and familiarity with the reduction and analysis of spectroscopic and photometric data. This post is designed as a career development post for someone who is newly qualified and wishes to gain experience in this field.

Closing date: 21 April 2006

For more details please see <http://www.jobs.ac.uk/jobfiles/XY789.html>

Informal enquiries: Prof. T. Marsh (Tom.Marsh@warwick.ac.uk, +44-(0)24765 74739)

Download/Website: www.warwick.ac.uk/go/astronomy

Contact: Tom.Marsh@warwick.ac.uk

Postdoc position at the University of Nevada Las Vegas

D. Proga

Department of Physics, University of Nevada, Las Vegas, NV 89154, USA

The University of Nevada Las Vegas invites applications for a postdoctoral scholar to work on mass outflows from astrophysical objects. The main emphasis will be given to making connection between observations and theory/simulations of outflows. A Ph.D. in Astronomy or related field from an accredited college or university is required. Expertise or interest in accretion flows and related outflows is desirable. Additionally, experience in developing or using computer tools to analyze observed spectra and in carrying out photoionization and synthetic spectra computations are welcome. Salary will be commensurate with labor market. Position is contingent upon funding.

Applicants should submit a current resume, detailed cover letter, description of research interests, and names, addresses, and telephone numbers of three references. Applicants should fully describe qualifications and experience, since the initial review will serve to evaluate applicants based on documented, relevant qualifications and professional work experience. The review of materials will begin immediately and will continue until the position is filled. Specific questions about this position maybe addressed to Dr. Daniel Proga at dproga@physics.unlv.edu. Materials should be addressed to Dr. Daniel Proga, Search Committee Chair, and are to be submitted via on line application <https://hrsearch.unlv.edu> . For assistance with UNLV's on-line applicant portal, contact Jen Feldmann at (702) 895-3886 or hrsearch@unlv.edu.

UNLV is an Affirmative Action/Equal Opportunity educator and employer committed to excellence through diversity.

Download/Website: <https://hrsearch.unlv.edu>

Contact: dproga@physics.unlv.edu

Postdoc position available at Universidad Catlica del Norte

E. Unda-Sanzana

Instituto de Astronomía, Universidad Católica del Norte, Avda. Angamos 0610 Antofagasta, Chile

The Astronomy Institute of the Universidad Católica del Norte, located in Antofagasta, Chile, offers a Post-doc position sponsored by European Southern Observatory ESO. Actually, there are four academic staff members working mainly in the research areas stellar astrophysics (cataclysmic and other types of variables; open star clusters and their content of variable stars), galactic and extragalactic astrophysics (galactic globular clusters and extragalactic globular cluster systems, variability of quasars and AGNs) and extragalactic sub millimeter astronomy and observational cosmology (molecular gas and cold dust in galaxies). However, qualified researchers from other areas of astrophysics are also strongly encouraged to apply.

Our academic staff has access to the 10% Chilean time share at all telescopes located in international observatories in the country, including APEX, the VLTs, Gemini, and Magellan, in addition to the other telescopes at La Silla, CTIO, ESO and Las Campanas observatories. In particular, the applicant is expected to use Cerro Paranal and/or APEX/ALMA (as soon as available) for original research projects. In addition, the post-doc should collaborate in the operation of Cerro Armazones Observatory of the University and should have experience in astronomical programming and present day data reduction systems like MIDAS and IRAF.

Information about our Institute is available at http://www.ucn.cl/instituto_astronomia. Due to the Chilean vacation period, E-mail requests can only be answered after February 28. Applicants should send, before 31 March 2006, and preferably by e-mail, their CV, publication list, statement of research interests, and arrange for two letters of recommendation to be sent to

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Contact: astronomia@ucn.cl

XMM-Newton Postdoctoral position in X-ray Astronomy

Natalie Webb

Centre d'Etude Spatiale des Rayonnements, 9 avenue du Colonel Roche, 31028 Toulouse CEDEX 4, France

Post-doc announcement, Deadline, 15th May 2006

The 'High Energy' Astrophysics group at the CESR invites applications for a postdoctoral position to participate in the CESR XMM-Newton Survey Science Centre (SSC) activities. The CESR is one of 10 European institutes that constitute the XMM-Newton SSC, responsible for producing the XMM-Newton Science Analysis Software (SAS), performing pipeline processing and the identification of serendipitously detected X-ray sources, along with the production of a catalogue of XMM-Newton detected sources. The group is also strongly involved in other large projects such as INTEGRAL.

As well as participating with the SSC activities, the successful applicant will be expected collaborate with other members of the group working on stellar compact objects, using not only XMM-Newton data, but also data from other observatories such as INTEGRAL, RXTE, Chandra etc. The groups particular interests are X-ray binaries, (millisecond) pulsars and globular clusters.

The candidate is expected to have: experience in high energy astrophysics; some programming skills and experience in compact objects. It would also be advantageous to have some skills in interpreting data from other wavelengths.

The post is open to candidates of any nationality who hold a PhD. The post is initially for one year and renewable for a further two years. Candidates should submit a curriculum vitae, a summary of research interests, a list of publications and two letters of recommendation to Natalie Webb at the above address or the email address below before 15th May 2006.

Download/Website: <http://www.cesr.fr>

Contact: Natalie.Webb@cesr.fr

6 As seen on astro-ph

In this issue of IB News, we have divided up the ‘as seen on astro-ph’ list into a number of categories. No guarantee is made that absolutely every paper is assigned to the correct category, but we hope you find the division useful in identifying the papers that you may wish to read. The list is as complete as we can make it from the time of IB News 23 (ie. mid October 2005) to the end of February 2006.

6.1 Cataclysmic Variables and related systems

astro-ph/0510780: **The accretion and spreading of matter on white dwarfs** by *Jacob Lund Fisker, Dinshaw S. Balsara, Tom Burger*

astro-ph/0511100: **FUSE and HST/STIS far-ultraviolet observations of AM Herculis in an extended low state** by *B.T. Gaensicke et al*

astro-ph/0511170: **Discovery of a Promising Candidate of WZ Sge-Type Dwarf Novae, ASAS 160048-4846.2: Evidence for Double-Peaked Humps** by *Akira Imada, L.A.G. Berto Monard*

astro-ph/0511350: **The possible orbital period of the nova V1493 Aquilae** by *Andrej Dobrotka et al*

astro-ph/0511367: **FITDisk: A Cataclysmic Variable Accretion Disk Demonstration Tool** by *Matt A. Wood, Josh Dolence, James C. Simpson*

astro-ph/0511461: **Spectroscopy of Four Cataclysmic Variables with Periods above 7 Hours** by *Christopher S. Peters, John R. Thorstensen*

astro-ph/0511468: **Photometry and Spectroscopy of KS Ursae Majoris during Superoutburst** by *Yinghe Zhao et al*

astro-ph/0511825: **The recurrent nova U Scorpii - an evolutionary considerations** by *Marek J. Sarna, Ene Ergma, Jelena Greskevits*

astro-ph/0512141: **Time-resolved observations of the short period CV SDSS J123813.73-033933.0** by *S.V. Zharikov et al*

astro-ph/0512145: **The periods of the intermediate polar RX J0153.3+7446** by *A.J. Norton, J.D. Tanner*

astro-ph/0512158: **Accreting White Dwarfs among the Planetary Nebulae Most Luminous in [O III]5007 Emission** by *Noam Soker*

astro-ph/0512205: **First Resolved Images of the Mira AB Symbiotic Binary at Centimeter Wavelengths** by *Lynn D. Matthews, Margarita Karovska*

astro-ph/0512274: **Study of Fe K-alpha lines in Non-magnetic Cataclysmic Variables using Chandra HEG data** by *V. R. Rana et al*

astro-ph/0512284: **Multi-periodic variations in the last 104 years light curve of the symbiotic star BF Cyg** by *Elia Leibowitz, Liliana Formiggini*

astro-ph/0512339: **Low State, Phase-Resolved IR Spectroscopy of VV Puppis** by *Steve B. Howell et al*

astro-ph/0512483: **Detection of orbital and superhump periods in Nova V2574 Ophiuchi (2004)** by *Tae W. Kang et al*

astro-ph/0512531: **The long period Intermediate Polar 1RXSJ154814.5-452845** by *D. de Martino et al*

- astro-ph/0512566: **Irradiated atmospheres of accreting magnetic white dwarfs with an application to the polar AM Herculis** by *M. Koenig, K. Beuermann, B.T. Gaensicke*
- astro-ph/0512620: **Assisted stellar suicide in V617 Sgr** by *J. E. Steiner et al*
- astro-ph/0601046: **Spectroscopy of the candidate pre-CV LTT 560** by *C. Tappert et al*
- astro-ph/0601104: **XMM-Newton and Chandra observations of the ultra-compact binary RX J1914+24** by *Gavin Ramsay, Mark Cropper, Pasi Hakala*
- astro-ph/0601284: **Dwarf Nova Oscillations and Quasi-Periodic Oscillations in Cataclysmic Variables, IV. Observations of Frequency Doubling and Tripling in VW Hyi** by *Brian Warner, Patrick A. Woudt*
- astro-ph/0601539: **Dwarf nova oscillations and quasi-periodic oscillations in cataclysmic variables – V. Results from an extensive survey** by *Magaretha L. Pretorius, Brian Warner, Patrick A. Woudt*
- astro-ph/0601712: **Measurement of the orbital and superhump periods of the eclipsing cataclysmic variable SDSS J170213.26+322954.1** by *David Boyd, Arto Oksanen, Arne Henden*
- astro-ph/0601713: **The Detection of a 3.5-h Period in the Classical Nova Velorum 1999 (V382 Vel) and the Long Term Behavior of the Nova Light Curve** by *Solen Balman, Alon Retter, Marc Bos*
- astro-ph/0602119: **The First Direct Spectroscopic Detection of a White Dwarf Primary in an AM CVn System** by *E.M. Sion et al*
- astro-ph/0602120: **A Far Ultraviolet Study of the Hot White Dwarf in the Dwarf Nova WW Ceti** by *P. Godon et al*
- astro-ph/0602126: **The Dwarf Novae During Quiescence** by *Joel A. Urban, Edward M. Sion*
- astro-ph/0602152: **Near-Infrared and Optical Studies of the fast nova V4643 Sgr (Nova Sagittarii 2001)** by *N.M. Ashok et al*
- astro-ph/0602157: **On the stability of dynamically unstable cataclysmic variables** by *A. Bianchini, F. Tamburini, P. E. Johnson*
- astro-ph/0602181: **Superhumps Behavior during Normal Outbursts in ER UMa: Spectroscopy and Photometry** by *Yinghe Zhao et al*
- astro-ph/0602215: **On a Site of X-ray Emission in AE Aquarii** by *N.R. Ikhsanov*
- astro-ph/0602278: **A Catalog and Atlas of Cataclysmic Variables: The Final Edition** by *Ronald A. Downes et al*
- astro-ph/0602331: **Decrease in the orbital period of dwarf nova OY Carinae** by *J. G. Greenhill et al*
- astro-ph/0602332: **The 2005 July Superoutburst of the Dwarf Nova 2QZ J021927.9-304545: the SU UMa Nature Confirmed** by *Akira Imada et al*
- astro-ph/0602393: **Roche tomography of cataclysmic variables – III. Starspots on AE Aqr** by *C. A. Watson, V. S. Dhillon, T. Shahbaz*
- astro-ph/0602562: **Spot patterns and differential rotation in the eclipsing pre-CV binary, V471 Tau** by *G. A. J. Hussain et al*
- astro-ph/0602563: **Prediction of Supersoft X-ray Phase during the 2006 Outburst of RS Ophiuchi** by *Izumi Hachisu, Mariko Kato*
- astro-ph/0602589: **High Resolution Spectra of Novae and the Quadratic Zeeman Effect** by *Robert Williams, Elena Mason et al*

6.2 LMXBs and related systems

- astro-ph/0510614: **Truncated disc versus extremely broad iron line in XTE J1650-500** by *Chris Done, Marek Gierlinski*
- astro-ph/0510651: **The XMM-Newton View of GRS1915+105** by *Andrea Martocchia et al*
- astro-ph/0510663: **The Energy Dependence of Neutron Star Surface Modes and X-ray Burst Oscillations** by *Anthony L. Piro, Lars Bildsten*
- astro-ph/0510667: **Observations of the X-ray Burster MX 0836-42 by the INTEGRAL and RXTE Orbiting**

- Observatories** by *I. V. Chelovekov et al*
- astro-ph/0510669: **QPOs in microquasars and Sgr A*:** measuring the black hole spin by *Gabriel Torok*
- astro-ph/0510698: **Jets in neutron star X-ray binaries: a comparison with black holes** by *S. Migliari, R.P. Fender*
- astro-ph/0510699: **X-ray Spectral States and High-Frequency QPOs in Black Hole Binaries** by *R. A. Remillard*
- astro-ph/0510725: **High frequency QPOs: nonlinear oscillations in strong gravity** by *Wlodek Kluzniak*
- astro-ph/0510775: **The 2005 outburst of GRO J1655-40: spectral evolution of the rise, as observed by Swift** by *C. Brocksopp et al*
- astro-ph/0510834: **A Model for Twin Kilohertz Quasi-Periodic Oscillations in Neutron Star Low-Mass X-Ray Binaries** by *X.-D. Li, C.-M. Zhang*
- astro-ph/0511191: **A highly-ionized absorber as a new explanation for the spectral changes during dips from X-ray binaries** by *L. Boirin et al*
- astro-ph/0511247: **Exposing the Nuclear Burning Ashes of Radius Expansion Type I X-ray Bursts** by *Nevin N. Weinberg, Lars Bildsten, Hendrik Schatz*
- astro-ph/0511292: **Millihertz Quasi-Periodic Oscillations from Marginally Stable Nuclear Burning on an Accreting Neutron Star** by *Alexander Heger, Andrew Cumming, Stanford E. Woosley*
- astro-ph/0511301: **X-ray and soft gamma-ray behaviour of the Galactic source 1E 1743.1-2843** by *M. Del Santo et al*
- astro-ph/0511380: **Eddington-limited X-ray Bursts as Distance Indicators. II. Possible Compositional Effects in Bursts from 4U 1636-536** by *Duncan Galloway et al*
- astro-ph/0511382: **QPO as the Rosetta Stone for understanding black hole accretion** by *Marek A. Abramowicz*
- astro-ph/0511388: **INTEGRAL high energy behaviour of 4U 1812-12** by *A. Tarana et al*
- astro-ph/0511486: **The faintest accretors** by *Andrew King, Rudy Wijnands*
- astro-ph/0511539: **XMM-Newton observations of the black hole X-ray transient XTE J1650-500 in quiescence** by *Jeroen Homan et al*
- astro-ph/0511635: **Galactic Globular Clusters with Luminous X-Ray Binaries** by *Joel N. Bregman*
- astro-ph/0511760: **Magnetic Braking of Ap/Bp Stars: Application to Compact Black-Hole X-Ray Binaries** by *S. Justham, S. Rappaport, Ph. Podsiadlowski*
- astro-ph/0511762: **XMM-Newton observations of the microquasars GRO J1655-40 and GRS 1915+105** by *Gloria Sala et al*
- astro-ph/0511828: **INTEGRAL observation of the X-ray burster KS 1741-293** by *G. De Cesare et al*
- astro-ph/0512019: **A population synthesis study on the faint X-ray sources in the Galactic center region** by *X. W. Liu, X.D. Li*
- astro-ph/0512061: **Low Frequency Radio Observations of GRS1915+105 with GMRT** by *C. H. Ishwara-Chandra et al*
- astro-ph/0512087: **GMRT Observations of Microquasar V4641 Sgr** by *C. H. Ishwara-Chandra, A. Pramesh Rao*
- astro-ph/0512106: **Probing dark matter with X-ray binaries** by *Walter Dehnen, Andrew King*
- astro-ph/0512168: **A Chandra X-ray observation of the globular cluster Terzan 1** by *E. M. Cackett et al*
- astro-ph/0512240: **Evolution of the X-Ray Jets from 4U 1755-33** by *P. Kaaret et al*
- astro-ph/0512253: **Infrared Spectroscopy of Symbiotic Stars. IV. V2116 Ophiuchi/GX 1+4, The Neutron Star Symbiotic** by *Kenneth H. Hinkle et al*
- astro-ph/0512361: **Boundary layer emission in luminous LMXBs** by *M. Gilfanov, M. Revnivtsev*
- astro-ph/0512387: **The Galactic black hole transient H1743-322 during outburst decay: connections between timing noise, state transitions and radio emission** by *E. Kalemci et al*
- astro-ph/0512419: **Understanding High-Density Matter Through Analysis of Surface Spectral Lines and Burst Oscillations from Accreting Neutron Stars** by *Sudip Bhattacharyya et al*
- astro-ph/0512558: **Low Mass X-ray Binary As the Progenitor of PSR J1713+0747** by *Wencong Chen, Xiangdong Li, Zhenru Wang*

- astro-ph/0512559: **Two-phase X-ray burst from GX 3+1 observed by INTEGRAL** by *Jerome Chenevez et al*
- astro-ph/0512595: **A Precessing Ring Model for Low-Frequency Quasi-periodic Oscillations** by *Jeremy D. Schnittman, Jeroen Homan, Jon M. Miller*
- astro-ph/0512656: **Interacting X-ray Binaries in Globular Clusters: 47Tuc vs. NGC 6397** by *Jonathan E. Grindlay*
- astro-ph/0601031: **INTEGRAL/RossiXTE high-energy observation of a state transition of GX 339-4** by *T. Belloni et al*
- astro-ph/0601045: **Two new candidate ultra-compact X-ray binaries** by *C.G. Bassa et al*
- astro-ph/0601076: **Mass and radius determination for the neutron star in X-ray burst source 4U/MXB 1728-34** by *A. Majczyna, J. Madej*
- astro-ph/0601238: **A microquasar model applied to unidentified gamma-ray sources** by *V. Bosch-Ramon et al*
- astro-ph/0601318: **The correlations between the twin kHz QPO frequencies of LMXBs** by *C.M. Zhang et al*
- astro-ph/0601364: **The decline and fall of GRS 1915+105: the end is nigh?** by *Michael Truss, Chris Done*
- astro-ph/0601409: **The Inclination Angle of and Mass of the Black Hole in XTE J1118+480** by *Dawn M. Gelino et al*
- astro-ph/0601482: **Opening angles, Lorentz factors and confinement of X-ray binary jets** by *J. C. A. Miller-Jones, R. P. Fender, E. Nakar*
- astro-ph/0601540: **The Spin of GRS 1915+105: Why do we Kerr?** by *Matthew Middleton et al*
- astro-ph/0601676: **X-ray spectral states of black holes from RXTE All-Sky Monitor** by *Marek Gierlinski, Jo Newton*
- astro-ph/0602175: **Simultaneous X-ray/optical observations of GX 9+9 (4U 1728-16)** by *A. K. H. Kong et al*
- astro-ph/0602200: **Stochastic modeling of kHz QPO light curves** by *R. Vio et al*
- astro-ph/0602222: **The 2005 outburst of the halo black hole X-ray transient XTE J1118+480** by *C. Zurita et al*
- astro-ph/0602235: **The faint 2005 hard state outburst of Aquila X-1 seen by INTEGRAL and RXTE** by *Jerome Rodriguez, Simon E. Shaw, Stephane Corbel*
- astro-ph/0602245: **Testing Accretion Disk Theory in Black Hole X-ray Binaries** by *Shane W. Davis, Chris Done, Omer M. Blaes*
- astro-ph/0602354: **A transient I band excess in the optical spectrum of the accreting millisecond pulsar SAX J1808.4-3658** by *J. G. Greenhill, A. B. Giles, C. Coutures*
- astro-ph/0602439: **Time-Dependent Synchrotron and Compton Spectra from Jets of Microquasars** by *Swati Gupta, Markus Boettcher, Charles D. Dermer*
- astro-ph/0602516: **Fourier resolved spectroscopy of 4U 1543-47 during the 2002 outburst** by *P. Reig et al*
- astro-ph/0602529: **Timing Features of the Accretion-driven Millisecond X-Ray Pulsar XTE J1807-294 in 2003 March Outburst** by *Fan Zhang et al*
- astro-ph/0602625: **The neutron star soft X-ray transient 1H1905+000 in quiescence** by *P.G. Jonker et al*
- astro-ph/0602633: **A Long, Hard Look at the Low-Hard State in Accreting Black Holes** by *J. M. Miller et al*

6.3 HMXBs and related systems

- astro-ph/0510645: **Resolving the Fe xxv Triplet with Chandra in Cen X-3** by *R. Iaria et al*
- astro-ph/0510658: **XTE J1739-302 as a Supergiant Fast X-ray Transient** by *D. M. Smith et al*
- astro-ph/0510675: **The optical counterpart to the peculiar X-ray transient XTE J1739-302** by *Ignacio Negueruela et al*
- astro-ph/0511088: **Supergiant Fast X-ray Transients: A new class of high mass X-ray binaries unveiled by INTEGRAL** by *Ignacio Negueruela et al*
- astro-ph/0511115: **IGR J17252-3616: an accreting pulsar observed by INTEGRAL and XMM-Newton** by *J.A. Zurita Heras et al*
- astro-ph/0511237: **V0332+53 in the outburst of 2004–2005: luminosity dependence of the cyclotron line and**

- pulse profile** by *S. S. Tsygankov et al*
- astro-ph/0511270: **Observation of V0332+53 over the 2004/2005 outburst with Integral** by *I. Kreykenbohm et al*
- astro-ph/0511285: **On the spin-up/spin-down transitions in accreting X-ray binaries** by *Rosalba Perna, Enrico Bozzo, Luigi Stella*
- astro-ph/0511288: **RXTE Discovery of Multiple Cyclotron Lines during the 2004 December Outburst of V0332+53** by *K. Pottschmidt et al*
- astro-ph/0511408: **Wind accretion in the massive X-ray binary 4U 2206+54: abnormally slow wind and a moderately eccentric orbit** by *M. Ribo et al*
- astro-ph/0511429: **INTEGRAL and XMM-Newton observations of the X-ray pulsar IGR J16320-4751/AX J1631.9-4752** by *J. Rodriguez et al*
- astro-ph/0511527: **Long-term evolution of accretion disks around the neutron star in Be/X-ray binaries** by *Kimitake Hayasaki, Atsuo T. Okazaki*
- astro-ph/0511560: **A closer look at the X-ray transient XTE J1908+094: identification of two new near-infrared candidate counterparts** by *Sylvain Chaty, Roberto P. Mignani, Gianluca Israel*
- astro-ph/0511601: **3A 0535+262 in outburst** by *P. Kretschmar et al*
- astro-ph/0511725: **Bimodal spectral variability of Cygnus X-1 in an intermediate state** by *J. Malzac et al*
- astro-ph/0512005: **Recent Timing Studies on RXTE Observations of 4U 1538-52** by *A. Baykal, S.C. Inam, E. Beklen*
- astro-ph/0512095: **Orbital phase spectroscopy of X-ray pulsars to study the stellar wind of the companion** by *U. Mukherjee, B. Paul*
- astro-ph/0512162: **Gamma Rays from Compton Scattering in the Jets of Microquasars: Application to LS 5039** by *Charles D. Dermer, Markus Boettcher*
- astro-ph/0512176: **Evidence of a Change in the Long Term Spin-down Rate of the X-ray Pulsar 4U 1907+09** by *A. Baykal, S.C. Inam, E. Beklen*
- astro-ph/0512190: **SS 433 : a phenomenon imitating a Wolf-Rayet star** by *Yael Fuchs, L. Koch Miramond, P. Abraham*
- astro-ph/0512285: **Correlated X-ray spectral and timing variability of the Be/X-ray binary V0332+53/BQ Cam during a type II outburst** by *P. Reig, S. Martinez-Nunez, V. Reglero*
- astro-ph/0512414: **INTEGRAL observation of the high-mass X-ray transient V0332+53 during the 2005 outburst decline** by *N. Mowlavi et al*
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