PROCEEDINGS OF SCIENCE

Conference concluding remarks

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These comments are necessarily rather heterogeneous and somewhat biased, reflecting what piqued my interests during the meeting. But that's the nature of concluding remarks and why Franco asks for several of us to present our own perspectives, I'm sure. Hopefully the complete collection of Concluding Remarks will give those not present at the conference some insights on the interesting results that were presented, which were many and varied.

There were a total of 58 talks presented by 50 attendees from 16 countries, with quite a diversity of topics. For interest, the split of presenters was 35 from the northern hemisphere and 15 from the south. There were a large numbers of contributions from young researchers, including graduate students, demonstrating our field is active, vibrant and relevant. It is clear that as a community we are leveraging access to the latest observational facilities and using the state of the art techniques. The future indeed looks bright for the field, particularly with a number of new telescopes and missions that are on the horizon.

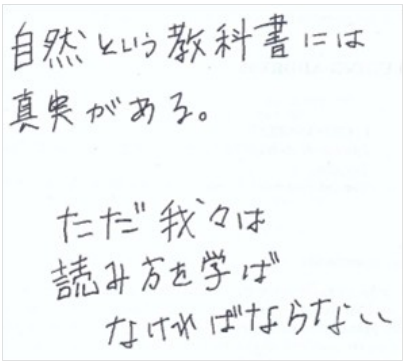
The Golden Age of Cataclysmic Variable and Related Objects V
Palermo Workshop 2019
Mondello, Palermo
2 – 7 September 2019

[1]Speaker

1. Talk Overviews

Here I list various talks and for some have added some *wording in italics* in an attempt to highlight the key points. Again, these are personal observations, so apologies for the brevity, possibly missing the point!

Franco GIOVANNELLI — The Golden Age of Cataclysmic Variables and Related Objects: Some Critical Comments
Learn to read the book of Nature

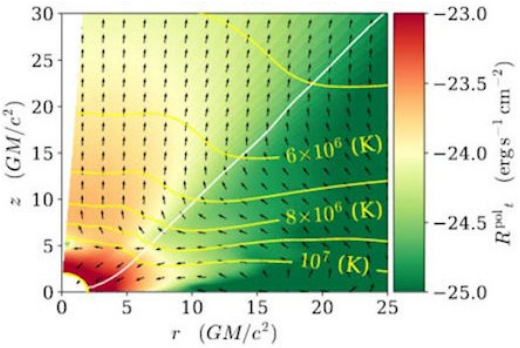


Jesus CORRAL-SANTANA — From CVs to X-ray Binaries
Analogies & Unification (e.g. Scaringi: universality of PDS; rms-flux; revealing case of V404 Cyg (wind > mass from disk)

Felipe LAGOS — The origin of EL CVn stars: A crucial test for close compact binary formation theories
unique opportunity to test models of close compact binary formation; predict third body (look)

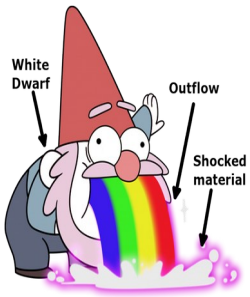
Kenji TANABE — Long Orbital-period Dwarf Nova V364 Lib: A possible Blac Hole Binary
like Cyg X-1?

Marek ABRAMOWICZ — Thin, slim and thick accretion disks: classic analytic results and most recent GRRMHD simulations
puffy disks & Polish donuts; consequence of B_D

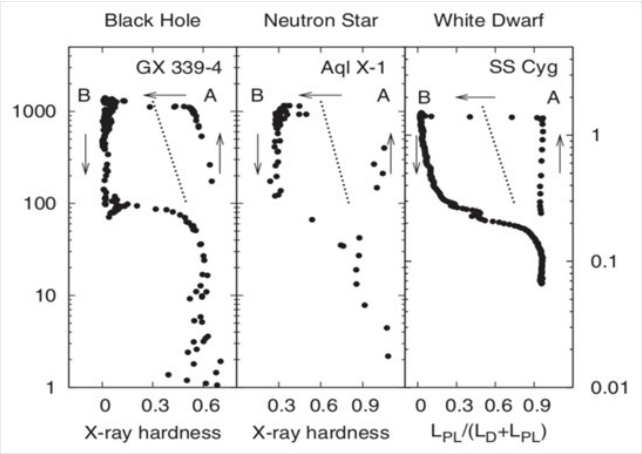


Noel CASTRO SEGURA — V341 Ara: the novalike that has it all

Bow shock; disk wind; also the analogies to XRBs (the "q" diagram of state transitions; see figure below). Nova shell & super-orbital periods.

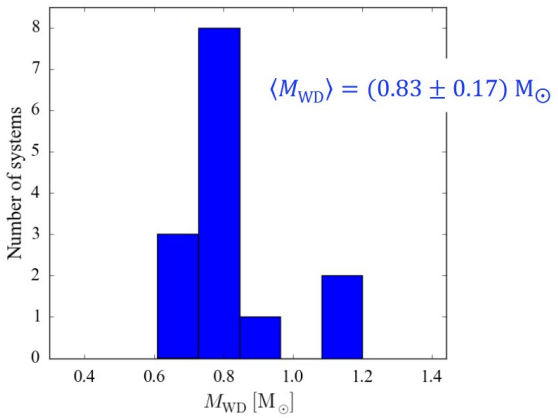


The "*q*" diagram of state transitions which Noel showed in his talk, linking CVs with LMXBs (e.g. the recent results by Deanne Coppejans), is a really nice example of important new insights in CVs, I think.



Anna PALA — Fundamental properties of Cataclysmic Variables from Gaia DR2

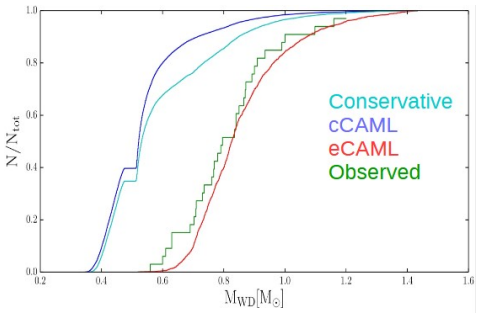
The first volume limited sample of CVs; ≃ 8000 CVs and CV candidates; mean mass $\langle M_{WD} \rangle = 0.83 \pm 0.17\ M_\odot$



Javier ABRIL — Identification, Classification and Evolution of CVs with GAIA DR2

Monica ZOROTOVIC — CV evolution and the White Dwarf mass problem

Understanding Period evolution, gap, bounce (lack of post-bouncers); CAML (consequential angular momentum loss) may explain: WD mass distribution; period distribution; CV space density; P_{min}, single low mass WDs



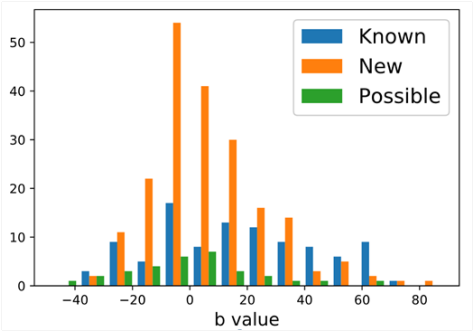
(Schreiber, Zorotovic & Wignen 2016)

Irina VOLOSHINA — Determination of parameters of dwarf nova EX Dra from photometric observations in different stages of activity

Yuuki WADA — X-ray Views of the Dwarf Nova GK Persei
T_s is half that in outburst compared to quiescence ($0.85\pm0.05M_\odot$)

Paula SZKODY — Finding CVs in the Zwicky Transient Facility (First Year Results)
High cadence in the galactic plane; many new discoveries

Results from the 1st year show ~40 candidates/month discovered, resulting in 225 total Cvs/candidates, with 27% previously known and 215 good candidates, including some detached WD binaries.



Diogo BELLONI — Properties of Cataclysmic Variables in Globular Clusters
Why so few ? Long duty cycles. Dynamics play an important role in explaining larger fractions of bright CVs observed in core-collapse clusters.

Paul MASON — Accretion onto magnetic CVs – Evidence for Complex Fields
Unique TESS dataset of CD Ind

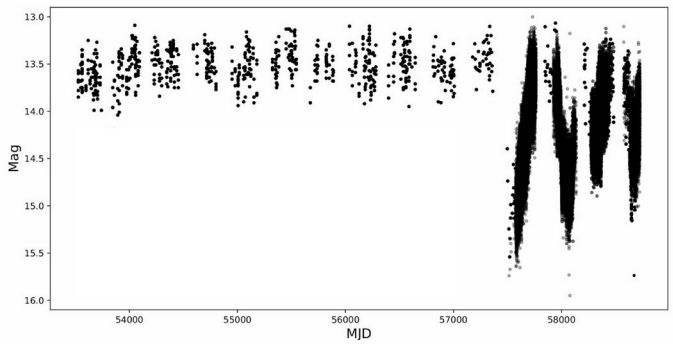
David BUCKLEY — The White Dwarf Pulsar AR Scorpii: Latest News

Takayuki HAYASHI — X-ray reflection from WDs in mCVs – Model versus observations
Ray tracing approach with accretion column; V1223 Sgr case

Claudia RODRIGUES — Masses and accretion rate for polars and intermediate polars with XMM-Newton data
X-ray spectral modelling (brems + cyclotron); masses

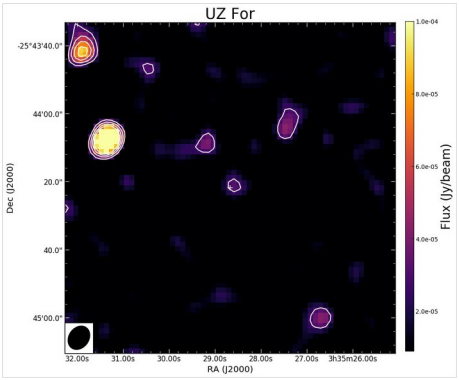
Mark KENNEDY

The Intermediate Polar FO Aqr - A Short Review
S*till "King" of the Intermediate Polars! Showing recent lower accretion states.*



Zwidofhelangani KHANGALE

UZ Fornacis: Photometry, Spectroscopy and Spectropolarimetry
Eclipsing Polar. Multiwavelength study (first multi-wavelength observations with MeerKAT radio array); detailed polarimetry



Linda SCHMIDTOBREICK

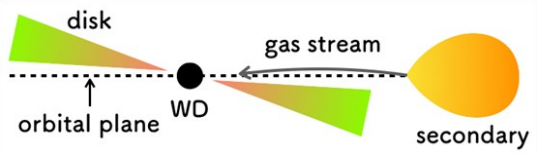
SW Sextantis stars - A link between Polars and Intermediate Polars?
Fossil origins or dynamo in CE. Need to explain high field single WDs. But no PCEB's are magnetic.

Kerry PATERSON

The warm DQ white dwarf OW J175358.85-310728.9 - A Short Review
Transitioning to cooler He WD? Rapidly rotating

Mariko KIMURA

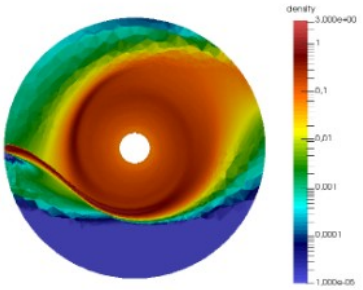
A Tilted Disk Instability Model for Dwarf Nova Outbursts
IW And –type: standstill with damped oscillations & negative superhump; tilted disc allow stream to penetrate far into disk



Kerry PATERSON

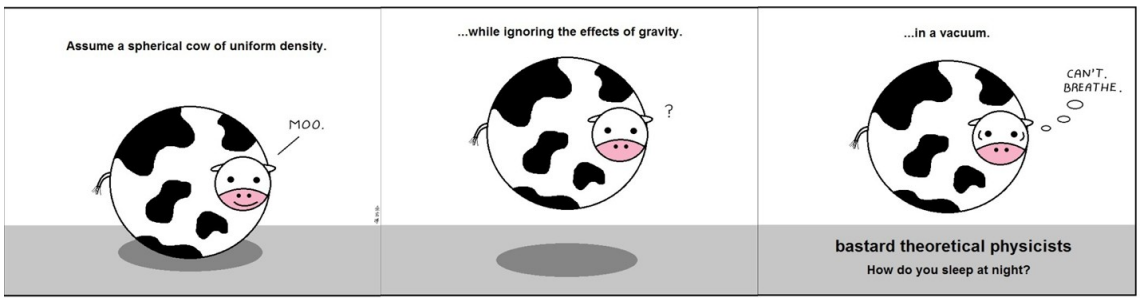
High-speed photometry of faint CVs
Program following up ASASSN, CRTS, SDSS, MASTER; 25 new CVs, 16 new P_{orb}

Georgi LATEV	Photometric (UBVRI) study of selected CVs: Flickering source parameters *Determined flickering spectral shape from UBVRI*d
Vladimir LUKIN	CVs light curves interpretation using 3D hydrodynamical simulation: V1239Her and PHL1445 experience



Alessandro EDEROCLITE	Classical Novae as Cataclysmic Variables *More to the MMRD relation? Future with SDSS filters, LSST (too bright at max though), E-ELT...*
Rosa POGGIANI	Galactic and Extragalactic Novae – A Multiwavelength Review *Novae show FeII to He/N evol, though T Pyx (RNe) He/N > FeII; new types of faint/fast novae (Kasliwal, Shara) not obeying the MMRD;10 out of 70 CNe seen in MeV γ-rays; old & new novae continue to surprise*
Akira ARAI	Spectral Evolution of Novae in the Near-Infrared
Svetlana BOEVA	Optical flickering of KR Aur in different States
Drahomir CHOCHOL	Classical nova outburst from the dwarf nova V392 Per
Sumner STARRFIELD	Hydrodynamic simulations of classical novae outbursts and their evolution to supernova Ia explosions *CO WDs in CNe grow in mass ; could be SN Ia progenitors via SD scenario. CO and ONe CNe may produce all the 7Li in the galaxy.*

Sumner's statement that “Classical and Recurrent Nova Outbursts present us with a number of unsolved problems” was accompanied with this explanatory figure:



There were many talks also devoted to Classical Novae:

Irma FUENTES MORALES	The orbital periods of old novae
Michael SHARA	Hibernation and the Orbital Period Change of QZ Aur
Michael SHARA	A 9 month long HST Survey for Novae in M87 *110 new CNe discovered & high rate (~1/day)*
Yoshiharu SHINNAKA	Spatial Distribution of Nova Ejecta during the Early Phase of Explosion of V339 Del from its high-resolution optical spectropolarimetry
Claus TAPPERT	The long-term behaviour of nova shell Luminosities
Akito TAJITSU	Explosive lithium production in the classical nova V339 Del (Nova Delphini 2013)
Akito TAJITSU	The 7Be II Resonance Lines In Two Classical Novae V5668 Sgr And V2944 Oph
Vojtech SIMON	Long-Term Observations of the Classical Nova

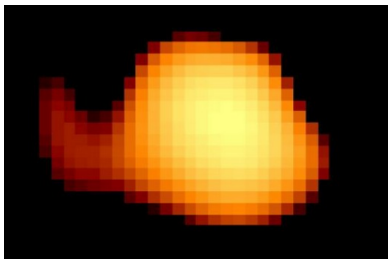
Also a number of talks on Symbiotic Stars and Recurrent Novae:

Joanna MIKOLAJEWSKA	An Updated Review of Symbiotic Systems
Denise GONÇALVES	Extragalactic Symbiotic Stars in the RAMSES II Era - A Review
Kenji TANABE	Balmer Decrement and Outburst of Symbiotic Stars
Tiina LIIMETS	Nebulosities of the Symbiotic Binary R Aquarii - A Short Review

Valentin BUJARRABAL	The symbiotic system R Aqr: direct imaging of the gravitational effects of the secondary on the stellar wind
Jaroslav MERC	Yellow symbiotic star AG Draconis in the scope of the New Online Database of Symbiotic Variables
Matt DARNLEY	Recurrent Novae - A Review

Not surprisingly for a CV meeting, there were also of talks relating to supernovae:

Ataru TANIKAWA	Progenitor and explosion models of type Ia supernovae
Stephania HERNANDEZ	Searching for SN Ia progenitors among white dwarf with early type secondary stars
Krystian ILKIEWICZ	Wind Roche Lobe Overflow - A mechanism for producing SN Ia from Symbiotic systems



Mass transfer in Mira. HST image (Karovska et el, 2004, 2005)

Roberto RADDI	LP 40-365 stars: Partly burned, runaway white dwarf survivors from peculiar thermonuclear supernovae *Importance of Gaia!*

Also an interesting presentation on the consequences of WD mergers:

Jordi ISERN	When white dwarfs collide *Scenario explaining chemical anomalies in meteorites*

Oumuamua: the first extrasolar asteroid

Finally there were presentations covering gravitational wave observations and prospect of advances with new facilities and methods:

Rosa POGGIANI	Gravitational wave astronomy with compact binary mergers
Kerry PATERSON	Searches After Gravitational-waves Using ARizona Observatories (SAGUARO)
Rosa POGGIANI	Cataclysmic variables as multimessenger
René HUDEC	ESA THESEUS and CVs
René HUDEC	Lobster Eye X Ray Monitors: Recent Status
Bruno Luigi MARTINO	A Machine Learning approach for the pulsar classification
Claudia RODRIGUES	SPARC4 - Simultaneous Polarimeter and RapidCamera in 4 band

Final Remarks

This workshop was a great success. The wonderful setting was very conducive to discussions on many subjects under the Sun, but most importantly, our science! Our gratitude to Franco for making it happen and the excellent LOC support from Francesco, Daniela & Bruno. Again we were entertained by Flavia & Anna Lisa!

With the continuing developments in our field, and future discoveries which will follow from the likes of ZTF & Rubin Observatory/LSST, maybe the next workshop will be sub-titled *the Platinum Age of CVs,* as we expand the population of objects and discover new phenomena!