Abstracts

Talks:

Matthew Bershady mab@astro.wisc.edu University of Wisconsin-Madison

Performance, Capabilities, and Early Observations with NIRWALS

We will present the results of the on-sky performance of SALT's new near-infrared integral-field spectrograph: NIRWALS. This will be a joint contribution from the registrant and the instrument PI, Marsha Wolf.

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David Buckley dibnob@saao.ac.za SALT/SAAO

Status of the SALT Transient Followup Programme

I shall review the status of the SALT Large Science Programme on transient and variable object followup, highlighting some of the major discoveries. I will also discuss the future prospects, particularly in the era of the Rubin Observatory's Legacy Survey of Space and Time.

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Brian Chaboyer brian.chaboyer@dartmouth.edu Dartmouth College

RR Lyrae Stars as Distance Indicators

RR Lyrae stars are relatively low mass, radially pulsating variable stars. In the visible, RR Lyrae stars follow a luminosity-metallicity, though with a relatively large dispersion. In the near-infrared, RR Lyrae stars follow a period-luminosity-metallicity relation with dispersion of about 3% in luminosity at a given period and metallicity. As such, RR Lyrae stars make excellent distant indicators. In this presentation, I will review the properties of RR Lyrae stars and the calibration of their near-infrared period-luminosity-metallicity relation using SALT HRS metallicity determinations, Gaia DR3 parallaxes and WISE/NEOWISE photometry.

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Phil Charles pac2soton@gmail.com University of Southampton

SALT ToO studies of outbursting X-ray Transients

Since 2016, the SALT Large Program on Transient Science has observed many X-ray binary transients, exploiting its Q-scheduling mode of operation to rapidly respond to new X-ray transient discoveries. Here I will give an update on some of the remarkably results obtained on both BH X-ray binaries and supersoft systems.

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Bozena Czerny bcz@cft.edu.pl Center for Theoretical Physics, Polish Academy of Sciences

Reverberation mapping of quasars with SALT and quasar application for cosmology

SALT observational campaign for three intermediate redshift quasars lasting over 12 years allowed us to measure not only the time delay of the Mg II line with respect to continuum but also perform wavelength-resolved time delay analysis which shed light onto the relative location of Fe II and Mg II emission. Since our sources are exceptionally bright our measurements were important for the determination of the Mg II Radius - Luminosity relation, helping to fix its bright tail. The delay measurements coming from all available monitoring programs combined allowed us to use the MgII Radius - Luminosity relation to constrain the cosmological model of the expansion of the Universe. We do not report any tension with the standard LambdaCDM model.

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Christian Eze cheze@camk.edu.pl Nicolaus Copernicus Astronomical Center of the Polish Academy of Sciences, Warsaw, Poland

Orbital parameter determination for a sample of massive pulsators in eclipsing binary systems observed with SALT

Abstract: A sample of nine massive pulsators in eclipsing binary systems observed with SALT between 2020 and 2022 are analyzed. The Radial velocities are extracted from the spectra using fxcor task in pyraf/iraf software and the orbital radial velocity curves over the orbit of the binaries fitted using rvfit program to determine the orbital parameters which will serve as part of the input physics for precise basic stellar parameters determination of the component stars and their in-depth asteroseismic analysis. The paper is a prerequisite for a work which seeks to combine the strengths of asteroseismology and empirical stellar basic parameter determinations for an in-depth asteroseismic analysis of massive pulsators in eclipsing binary systems in order to address the mass discrepancy problem in massive stars

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Mariusz Gromadzki marg@astrouw.edu.pl Astronomical Observatory, University of Warsaw

Transients - classification and follow up with SALT

SALT telescope is a perfect tool for spectroscopic classification and follow up various types of transients.

Its size allows them to follow up in the late stage when they get faint. Localization in the African continent makes it a complementary facility to ones located in Chile and Australia, which allows participation in observation of rapidly changing targets like gravitational wave counterparts or FBOTs.
In my talk I will shortly present our results for a few transients follow up with SALT and other facilities, mostly NTT within ePESSTO+ collaboration. This will includes such targets like fast fading NS-WD merger SN 2018kzr, strongly interacting supernova SN 2017jei and a few nuclear transients.

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Labanya Kumar Guha labanya@iucaa.in IUCAA, Pune, India

Probing large scale gas flows with strong MgII absorbers.

Quasar-galaxy pairs (QGP) at small impact parameters (D<30kpc) are important probes of gas flows in the disk-halo interface of the galaxies. Using the SALT, we are conducting a detailed study of largest sample of such QGPs at 0.4<z3A) and (ii) Galaxies On Top Of Quasars (GOTOQs; 198 galaxies). Our sample, while substantially increasing the number of galaxies studied at D<15kpc, provides an accurate determination of W(MgII)-D relationship at small impact parameters complementing various IFU studies that typically probe large D. The value of W(D=0) we find are factor 2 higher than what was inferred in the past. While massive/brighter post-starburst galaxies host the USMgII, the GOTOQs are less massive galaxies having SFR and metallicity consistent with the main sequence. I will present a physical picture of gas at small D.

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Gerald Handler gerald@camk.edu.pl Nicolaus Copernicus Astronomical Center Warsaw

Using SALT to understand tidally tilted pulsation

Tidally tilted pulsation occurs in a small group of pulsating stars in close binary systems. The pulsation axis of the oscillating star has been pulled into the orbital plane by the gravitational pull of the companion. This causes the surface patterns of the oscillations to precess with respect to the observer, giving a means to identify them, hence facilitating asteroseismic study of the pulsator. The analysis of the binary-induced variability puts strong external constraints on the basic parameters of the star, hence restricting parameter space for modelling. We have so far studied three systems with tidally tilted pulsations using SALT HRS spectroscopy and give an overview of the results

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Krzysztof Hełminiak xysiek@ncac.torun.pl Nicolaus Copernicus Astronomical Center, Toruń

Stellar characterisation of ARIEL targets

The upcoming ARIEL space mission (M4 in the ESA Cosmic Vision longterm plan) aims to measure the chemical composition and atmospheric thermal structures of ~1000 transiting extrasolar planets. In order to reach that goal, the host stars must be studied beforehand. Stellar parameters and abundances of several crucial elements (e.g. C, O, N, S, Ti, Al) must be known with high precision, thus require high-resolution, high-SNR spectra with wide wavelength coverage. The HRS is therefore a nearly perfect choice. In my presentation I will quickly present the Stellar Characterisation (SC) working group of the ARIEL Mission consortium, and the internal multi-telescope observational campaign, with the emphasis on the HRS unique capabilities and its crucial role in the programme.

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David Homan dhoman@aip.de Leibniz-Institut fuer Astrophysik Potsdam (AIP)

Insights into X-ray-selected AGN transient accretion events from eROSITA's All-Sky Surveys I: Sample overview

I will present the results of an extensive programme of multi-wavelength follow up of 'changing-state' AGN. These extremely variable AGN offer the opportunity to observe AGN evolution on human timescales. Our sample is selected based on X-ray variability, using the unique all-sky monitoring provided by the X-ray telescope eROSITA onboard the SRG satellite. We selected ~2200 extragalactic sources showing extreme X-ray-flux changes and targeted the most promising candidates for optical, UV, and X-ray follow-up. SALT spectra play an important role in our follow-up campaign. We have at least one optical follow-up spectrum for 350 objects.
I will present an overview of the range of observed behaviours in our sample, and I will also discuss the link between X-ray and optical variability in AGN. I will focus on the `changing-look' phenomenon, observed in only a subset of our AGN sample, and on transition timescales in AGN accretion flows.

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Krystian Iłkiewicz kilkiewicz@astrouw.edu.pl Astronomical Observatory of the University of Warsaw

Investigating nova remnants with SALT

During a nova explosion a significant amount of the material is ejected. This material can be observed as it moves away from the system and forms a nebular remnant. Studying nova remnants can help us understand the progress of the nova outburst on the surface of the white dwarf and the interaction of the nova ejecta with the interstellar medium. I will present SALT observations of nova remnants of novae with red giant donors, also known as symbiotic novae.

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Simon Jeffery simon.jeffery@armagh.ac.uk Armagh Observatory and Planetarium

The SALT survey of hydrogen-deficient stars and hot subdwarfs

Hot subdwarfs represent a phase in the late evolution of many stellar classes, and include core-burning helium stars and pre-white dwarfs of all types. Whilst many are hydrogen-rich subdwarf B stars, some have surfaces either partially or extremely depleted in hydrogen. Other peculiarities include super-abundances of trans-iron elements. Such stars connect cooler hydrogen-deficient stars with white dwarfs and map out many evolution pathways. They include stars formed from double white dwarf mergers, from late thermal pulses, and from close binary interaction. Our SALT programme has two goals. 1) Survey and characterize all chemically-peculiar hot subdwarfs with V<16.5 in the southern sky. 2) Demonstrate connections between classes by means of surface chemistry and, where possible, direct measurements of evolution time scales. The survey has proven to be a rich discovery tool; we will report on recent results.

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Tomasz Kamiński tomkam@ncac.torun.pl CAMK

A rare transition in the post-AGB star U Equ.

There is a group of post-AGB objects with bipolar outflows which formed in a short event (tens to 100 years) and required power that is larger than the radiative power of the central source. Such an event has rather never been observed directly and remains a very elusive process of nebulae formation. Using SALT high-resolution spectroscopy, we have recently observed a post-AGB star U Equlei which has experienced a dramatic change in its optical appearance: from a spectrum dominated by molecular bands of cool neutral gas into a hot object with atomic plasma. This spectral change, which must have occurred within about 20 years, was associated with a rise of U Equ's luminosity. Are we witnessing a rare event of formation of the super-power bipolar outflow in a post AGB object? We will describe the spectacular change in U Equ and its implications for our understanding of the post-AGB phase.

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Thomas Killestein t.killestein@warwick.ac.uk University of Warwick

Probing circumstellar environments of supernovae with high-cadence SALTICAM photometry

Many unknowns surround these final stages of stellar evolution: what is the nature of pre-explosion mass loss, which mechanisms dominate, and how does this manifest in the surrounding circumstellar medium (CSM)? Existing studies have focused on the larger-scale observables of interaction, yet we also anticipate substructure from the 'bursty' episodic mass loss, and hydrodynamic instabilities. Bright, nearby transients provide ideal 'lighthouses' to illuminate CSM and provide constraints on the structure/clumping through how this modulates their spectra/light curves.
In this talk I will present early results from a reactive study of two nearby CCSNe using high-cadence (<30s) SALT/LT photometry to probe for short-timescale variability in their light curves -- including the earliest high-cadence follow-up (<48h post-explosion) obtained thus far. Assuming any variability to be CSM-induced, we exclude overdensities of ~2% on length scales of 10^12 cm.

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Piotr Kołaczek-Szymański kolaczek@astro.uni.wroc.pl University of Wrocław

Why is the loudest stellar heartbeat so loud?

Abstract: Eccentric ellipsoidal variables (EEVs, also dubbed as heartbeat stars) provide an excellent laboratory for studying the strong tidal interactions between components in binary systems. The record holder in terms of the range of brightness variations (~0.4 mag in V passband) is the `extreme' and massive EEV, MACHO80.7443.1718, whose primary component is a B0.5 Iae blue supergiant orbited by a late-O type dwarf in a highly eccentric orbit. However, the problem is that even combined proximity effects fail to explain such significant changes in brightness. It is also problematic to explain these changes by means of the collision of stellar winds. The time-series spectra of this object, which we obtained at SALT-HRS, and the light curves obtained by us in the U and B passbands come to the rescue.

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Ilani Loubser ilani.loubser@nwu.ac.za North-West University, SA

Spectroscopic follow-up of galaxies from the MeerKAT Fornax Survey

We present results from our campaign to follow-up interesting, individual galaxies in the Fornax cluster, chosen from MeerKAT Fornax Survey (MFS) HI results, with spatially-resolved optical spectroscopy from the SALT. Our overall aim with the spectroscopy is to study the stellar populations of the galaxies and connect it to their gas content. The physical process(es) that describe the transition in colour of blue galaxies to red galaxies is of particular importance. We present measurements of optical parameters to separate galaxies governed by secular evolution (ageing) from systems whose star formation was interrupted during the last ~Gyr (quenching). We also combine our SALT spectra with spectra from other surveys (Fornax3D, SAMI Fornax Dwarf survey).
If time permits, I'll also present results from three M.Sc students whose dissertations were based on SALT data (from the BEAMS, CLoGS and Fornax projects).

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Antoine Mahoro antoine@saao.ac.za South African Astronomical Observatory

The [OIII] profiles of far-infrared active and non-active green valley galaxies.

We present a study of the [OIII] line profile in a sub-sample of 8 active galactic nuclei (AGN) and 6 non-AGN in the green valley at z < 0.5 using long-slit spectroscopic observations with the 11 m Southern African Large Telescope. Gaussian decomposition of the line profile was performed to study its different components.
We observe that the AGN profile is more complex than the non-AGN one. In particular, in most AGN (5/8) we detect a blue wing of the line. We also find that the AGN show blue wings with a median velocity width of ~ 600 km/s, and a velocity offset from the core component in the range of -90 to -350 km/s, in contrast to the non-AGN galaxies, where we do not detect blue wings in any of their [OIII] line profiles.

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Alex Markowitz almarkowitz@camk.edu.pl Nicolaus Copernicus Astronomical Center, Polish Academy of Sciences

Insights into X-ray-selected AGN transient accretion events from eROSITA's All Sky Surveys II: Followups on individual AGN ignition events

"Changing-state"/"changing-look" AGN display radical changes in continuum emission and optical spectra, and represent rare but major changes in accretion rate. Such events yield insight into both duty cycles and how the entire accretion flow readjusts itself during major changes in accretion.
The eROSITA X-ray telescope onboard Spektrum-R/G has been performing multiple all-sky X-ray surveys, monitoring a vast sample of AGN to catch AGN accretion ignition/shutdown events as they are happening. For selected X-ray-identified changing-state events, we trigger multi-wavelength campaigns to track the accretion disk, corona, and BLR -- the latter with observations including SALT RSS spectra.
I present results for those few selected candidate CLAGN events subjected to the most intensive follow-up campaigns. Results include a CLAGN with double-peaked Balmer profiles, evidence for transient radial flows, and possible connections between variable Balmer lines and X-ray coronal behavior.

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Joanna Mikołajewska mikolaj@camk.edu.pl CAMK PAN

Highlights from SALT HRS monitoring of symbiotic and related binaries

I will present an overview of 9-yr monitoring of Magellanic and Galactic symbiotic systems to characterize their binary parameters, and in particular to obtain component masses. Among the most interesting results are: spectroscopic orbits for two symbiotic recurrent novae and several Magellanic symbiotics, detection of jets in two systems that underwent outburst during our monitoring, and discovery of an extreme Algol/b Lyr binary system in SMC.

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David Mkrtichian davidmkrt@gmail.com National Astronomical Research Institute of Thailand

SALT spectroscopic survey for non-radial pulsations in oEA stars.

We discussed the importance of the asteroseismic studies of mass-accreting pulsating components of Algols (oEA stars) and the interaction of cyclic magnetic activity of components with mass-transfer rate and the pulsations. We present the results of a spectroscopic survey on the search for and identification of non-radial pulsations in 14 oEA stars carried out using high-resolution SALT spectroscopy supplemented by TESS photometry. We discovered strong pulsational line-profile variations in the majority of stars of the sample. For individual binary systems, we have carried out 3D hydrodynamic calculations of the mass transfer and discussed the influence of gas streams and circumstellar gaseous structures and discs on the detection of non-radial pulsations.

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Ayush Moharana ayushm@ncac.torun.pl CAMK PAN, Torun

Study of evolution and dynamics of Compact Hierarchical Triples

Compact Hierarchical Triple (CHT) is a triple system where a third star orbits around an inner binary in an orbit fewer than 1000 days. These systems were thought to be rare but we are finding more of these systems lately. Using space-based photometry and spectroscopy we are also able to obtain accurate stellar, orbital and atmospheric parameters of all three stars in the system. This motivated us to observe these systems with our SALT monitoring programme (P.I. A.Moharana) using the HRS instrument. We use spectral disentangling to obtain individual spectroscopic parameters and use them to constrain the evolution of the systems. Using radial velocities we constrain the current dynamics and use numerical integrations to predict their complicated dynamical evolution. We present our initial results from 2 semesters of the programme and some interesting evolutionary cases.

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Itumeleng Monageng itu@saao.ac.za University of Cape Town/South African Astronomical Observatory

The long-term Be disc and neutron star interaction of MAXI J0903-531

Be X-ray binaries, which make up the largest subclass of the high mass X-ray binary systems, comprise a neutron star in an eccentric orbit around Be star companion with a geometrically thin Keplerian disc. The interaction of the neutron star with the Be disc results in the accretion of matter leading to X-ray outbursts.
In this talk, I will present optical and X-ray analysis of the recently discovered Galactic Be X-ray binary system, MAXI J0903-531. SALT spectra were collected and used to study the impact of the neutron star on the Be disc. The spectra were used to obtain radial velocities, where the orbital geometry of the binary system is derived. I will discuss the peculiar long-term behaviour of the Balmer lines over multiple orbits of the neutron star and make inferences about the Be disc structure.

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Ewa Niemczura ewa.niemczura@uwr.edu.pl Uniwersytet Wrocławski

Chemically peculiar HgMn stars in the southern hemisphere

The region of the main sequence centred on early A and late B stars represents an ideal laboratory to study a wide variety of physical processes that are at work in most stellar types. These processes include radiation-driven diffusion, differential gravitational settling, and magnetic fields. While their observable manifestation is particularly prominent in tepid stars, some or all of them do play a significant role in the physics, formation, and evolution of most stars. Among the tepid stars, one identifies chemically peculiar objects, that have characteristic surface abundance patterns, strength and structure of the magnetic field, rotation, and multiplicity. For instance, the classical Bp-Si stars and the HgMn stars result from different formation and evolution scenarios. The analysis of HRS@SALT spectra of a sample of HgMn stars will allow for determining their atmospheric parameters, chemical abundances, and study processes in their atmospheres.

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Marina Orio orio@astro.wisc.edu University of Wisconsin-Madison (USA) and INAF-Padova (Italy)

X-ray binaries containing a Be star and a white dwarf

In 2018 we published a paper investigating four transient or recurrent supersoft X-ray sources in the Magellanic Clouds, and found evidence that they contain a Be star, while the companion is most likely a white dwarf. So far, it has been difficult to prove the presence of a white dwarf in a Be X-ray binary, but there should be a significant number of B stars with a massive white dwarf companions. We collected more SALT X-ray spectra of these four and of one more source in the last few years, searching periodicities in the spectral variability and evidence of the white dwarf. Some of the results are not conclusive, while for two sources the data are more interesting and lead to some conclusions. We will discuss the relevance of these systems as possible contributors to the supernova Ia rate.

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Andrzej Pigulski pigulski@astro.uni.wroc.pl University of Wrocław

Discovering the nature of the multiple system containing blue large-amplitude pulsator

Abstract: Using data from the TESS mission supplemented by ground-based photometric observations, we found that HD 133729 is a binary system containing a blue large-amplitude pulsator (BLAP) and a late B-type star. This system is the first known to contain a component that is a BLAP. However, the subsequent time-resolved SALT spectroscopy has revealed that HD 133729 is actually a triple system. We will show how the SALT data allow us to constrain the parameters of the BLAP and discuss likely scenarios of the formation of this unusual system.

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Natalia Posiłek posilek@astro.uni.wroc.pl Instytut Astronomiczny, Uniwersytet Wrocławski

The problem of variability of chemically peculiar Am stars

The metallic-line (Am) stars are chemically peculiar A and early F stars that show weak spectral lines of Ca II K and strong Fe-group features compared to their H-line spectral type. These stars are located in the classical instability zone, where pulsating delta Scuti stars lie. For many years it was assumed that Am stars cannot pulsate due to the gravitational settling of helium in the He II partial ionisation zone, where delta Scuti pulsations are driven. However, over time it appeared that many Am stars pulsate. Turbulent pressure was proposed as the main driving mechanism in pulsating Am stars.
Detailed analysis of high-resolution spectra obtained with the HRS@SALT (determination of atmospheric parameters, chemical composition, projected rotational velocities) combined with analysis of the TESS photometric data can throw a light on the matter of varability of chemically peculiar Am stars.

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Milena Ratajczak milena@astrouw.edu.pl Astronomical Observatory, University of Warsaw

Tracking eccentric binaries with SALT

Eccentric binaries may serve as a tool for studying several astrophysical phenomena, like orbital dynamics and gravitational effects of stars on each other, including tidally induced pulsations. We hereby present the selection of eccentric ellipsoidal variable stars identified in the OGLE and BRITE data collections, whose nature we unveiled by tracking radial velocity changes around the periastron. The selection includes the most eccentric system with massive stars known to date, as well as an intriguing binary from the Galactic bulge.

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Encarni Romero Colmenero erc@salt.ac.za SAAO/SALT

SALT Status Update

I will be providing an update on SALT, from instrument status to upcoming improvements etc.

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Tathagata Saha tathagata@camk.edu.pl Nicolaus Copernicus Astronomical Center of the Polish Academy of Sciences

Multi-wavelength study of a flaring CLAGN source with double peaked Balmer lines

In 2020, eROSITA along with the Zwicky Transient Facility(ZTF) detected a flaring event in a type-1.9 AGN, where a sharp flux variation in the X-rays by a factor of 17 and along with an optical magnitude change of ~ 0.55 and ~ 0.3 in g- and r-band magnitudes was seen. Multiwavelength follow-up revealed that the extreme continuum variability is tied to a spectral type change from 1.9 to 1 with the appearance of a double-peaked broad H-beta emission line. The X-ray spectra are relatively flat with photon indices ~1.9, with no soft excess. The nature of optical variability and the flat photon indices in the X-ray spectra support instability in an already existing accretion disk, against a tidal disruption event, as the cause of the flare. Here, we present the results of our ongoing campaign.

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Rosalind Skelton ros@saao.ac.za SAAO/SALT – oral

BEAMS: Exploring the evolution of brightest cluster galaxies with a SALT large science program

I will present an overview of the Brightest Cluster Galaxy Evolution with Advanced ACT, MeerKAT and SALT (BEAMS) Large Science Program carried out on SALT since 2019 (PI: M. Hilton). BEAMS uses multi wavelength data and SALT spectroscopy to investigate how the most massive galaxies in clusters at $0.3 < z < 0.8$ change over 3.5 billion years of look-back time, by tracing AGN activity, changes in the stellar populations and the growth of the galaxies through mergers and star formation. The clusters are identified from the Sunyaev-Zeldovich effect in AdvACT data, providing a well-defined selection function that is approximately independent of cluster mass across redshift. Approximately 120 BCGs and some of their nearby companions have been observed with SALT (as of January 2023) in this ongoing project.

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Rodolfo Smiljanic rsmiljanic@gmail.com CAMK/PAN

Follow-up high spectral resolution observations of metal-poor stars

We are following-up with high-resolution spectroscopy a sample of candidate metal-poor stars, with [Fe/H] < -2.0, identified using catalogues of large spectroscopic and photometric surveys with both UVES at the VLT and HRS at SALT. Such old metal-poor stars offer valuable information about the early chemical enrichment of the Milky Way. In particular, some stars with [Fe/H] < -2.0 are thought to have formed from material that has been enriched by only one star of likely Population III. In this presentation I will introduce the program and present preliminary results, focusing in particular on the abundances of heavy elements formed by neutron capture processes. We expect that the new data being obtained for these stars will help to improve our understanding of the processes of star formation in the early stages of the Milky Way.

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Lee Townsend lee@saao.ac.za SALT

A SALT spectroscopic catalogue of Be/X-ray binaries.

We will present details of our 10 year monitoring programme of the Be counterparts of Galactic and Magellanic massive X-ray binaries. The long baseline of these observations, along with good cadence, resolution & S/N make this one of the best available optical spectroscopic datasets in the field, and a valuable resource for observers and theoreticians alike. We will discuss some of the science that our team is doing with this data, before the full catalogue is released to the community.

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Petri Vaisanen petri@saao.ac.za South African Astronomical Observatory

TBD - But I would most likely want to present most recent updates from SAAO, e.g. the Intelligent Observatory Project, and other SAAO/SALT collaborative projects.

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Patrick Woudt pwoudt@ast.uct.ac.za University of Cape Town

SALT, MeerKAT and MeerLICHT

Abstract: I will give an overview of five years of searching for astrophysical transients with MeerKAT through the ThunderKAT large survey programme and the associated optical MeerLICHT telescope. The commensal component of ThunderKAT has been very successful in finding a large number of radio transients in the radio image domain on a range of time scales, from minutes to days to years. Highlights from the discoveries are presented, particularly where SALT has played a significant role in the characterisation of the transient source.

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Pawel Zielinski pzielinski@umk.pl Institute of Astronomy, Nicolaus Copernicus University in Toruń

How do the SALT spectra help in classification of Gaia microlensing events and distance determination

Based on Gaia light curves we are able to select a growing number of microlensing event candidates located mostly in the Galactic Plane. The majority of them must still be classified spectroscopically in order to distinguish genuine microlensing events from other types of outbursts and variables. Therefore, we use a range of world-class telescopes, including SALT, to detect distinctive absorption or emission features and determine physical parameters for the sources in the microlensing events. Moreover, the spectroscopic analysis is important not only in constraining the microlensing model and the lens parameters, but also in distance estimation. From the comparison of spectroscopic distances with Gaia parallax/distance measurements we found that at least in some cases Gaia distances cannot be trusted (probably due to astrometric microlensing) and have to be used with caution.

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Posters:

Cezary Galan cezagal@gmail.com CAMK PAN, Warsaw, Poland

HRS monitoring of symbiotic stars with yellow giants and active systems during outbursts.

Authors: Cezary Gałan and Joanna Mikołajewska

The long-term monitoring of the yellow symbiotic systems (programs: 2019-1-MLT-008 and 2018-2-SCI-021) is ongoing since 2018 with the aim to study atmospheric parameters and chemical composition of the giant stars as well as analysis of the spectroscopic orbits of the system components. So far we have covered most of the orbit for the majority of the sample. The selected active symbiotic systems including SyNe (e.g. V618 Sgr, St 2-22) during and around outbursts are also monitored. The sample of the obtained results is presented.

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Gerald Handler gerald@camk.edu.pl Nicolaus Copernicus Astronomical Center Warsaw

Basic parameters determined for Beta Cephei pulsators from SALT spectroscopy

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Daniel Holdsworth daniel.l.holdsworth@gmail.com University of Central Lancashire / SALT

Update on the Progress of HRS HS Pipeline development

This poster will document the progress of the development of the HRS HS pipeline, including the results of on-sky testing, and stability monitoring, and resolution achievements.

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Sebastian Kurowski sebastian@oa.uj.edu.pl Astronomical Observatory of the Jagiellonian University

Characteristics of the accretion disc in V1040 Cen

V1040 Cen is a high inclination, non-eclipsing dwarf nova. We observed it with the High Resolution Spectrograph on the South African Large Telescope (SALT), covering the whole orbital period. Using diagnostic diagram and mirroring methods we recovered orbital parameters of the system like phase zero, semi-amplitude of the primary's radial velocity and the systemic velocity. We reconstructed brightness maps of the accretion disc in the Hydrogen and Helium emission lines using Doppler tomography technique. Using the same methods, we also analyzed the archival dataset from VLT UVES, which was obtained 10 years before our SALT observations. This allowed us to compare our results between these two observing periods.

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Michał Radziwonowicz m.radziwonow@student.uw.edu.pl University of Warsaw, Faculty of Physics

Analysis of the symbiotic binaries using the SMC 147 system as an example

Using SALT spectra and observation data I determined radial velocity of SMC 147 symbiotic binary for interval of time long enough to obtain its orbital period and compare it to the period derived from photometric observations. By the time of the conference I plan to further analyze the binary to find its other characteristics.

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