The Stars, Milky Way and Local Volume (SMWLV) Collaboration

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On behalf of the SMWLV Collaboration



Photos courtesy of Carlos Corco, flickr.com/ccorco

SMWLV - Quick Summary





https://rubin-smwlv.github.io/

Co-chairs: Bolivia Cuevas-Otahola, Kristen Dage, Tom J. Wilson



Organization
- Science Working Groups (SWG)
- SWG goals

Collaborative Overlaps:
- Synergies with other Science Collaborations, particularly: TVS, DESC, Galaxies
- Shared connections via Task Forces

Communication:
- Monthly collaboration wide telecon
- Monthly meetings for active science working groups
- Email, slack, LSST community forum

Activity:
- Multiple SWGs organizing virtual workshops
- Work on roadmaps
- Ongoing preparation
- Research facilitated by in-kind contribs. (e.g. UNAM)

Membership:
- Who are members? **anyone interested in SMWLV science with LSST**
- Should you become a member? **yes**
- How to become a member? **short application on SMWLV website**

Membership application QR code

Collaboration Structure and Overview

Science Working Groups:

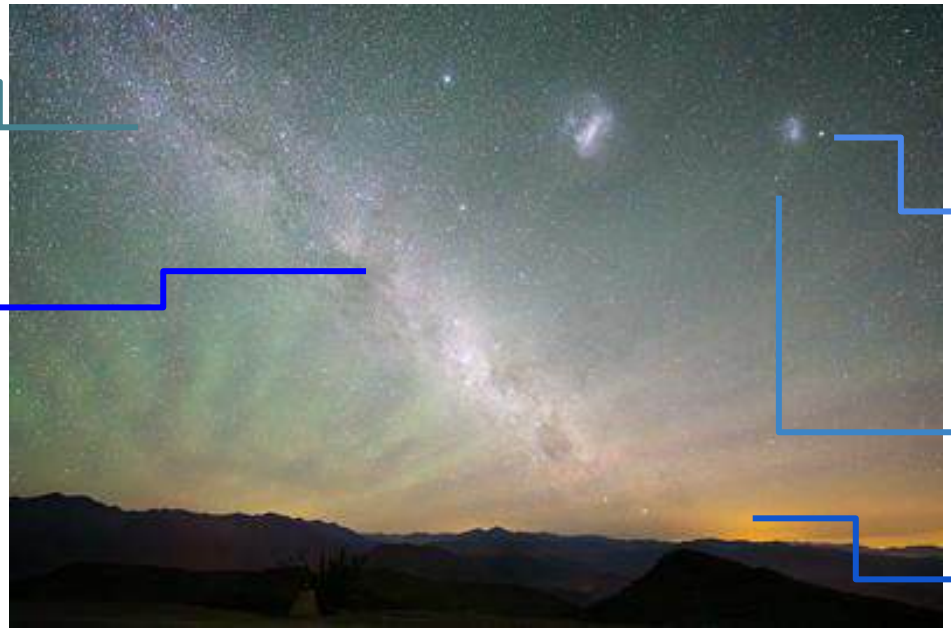


Collaboration Structure and Overview

Science Working Groups:

Local Volume

Galactic Structure and ISM



Star Clusters

Variable Stars

Solar Neighborhood

Collaboration Structure and Overview

Science Working Groups:



Chair: John Gizis

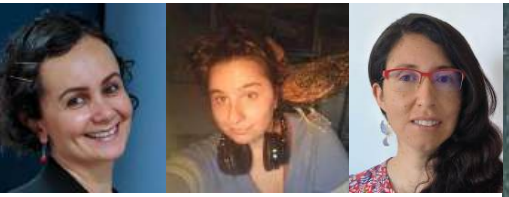


Solar Neighborhood

The Solar Neighborhood Working Group will enable the discovery and study of very-low-mass stars, brown dwarfs, and white dwarfs within 200 parsecs of the Sun.

Collaboration Structure and Overview

Science Working Groups:



Chairs: Ana Chies Santos, Kristen Dage, Yasna Ordenes Briceño



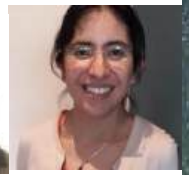
Star Clusters

The Star Clusters Working Group will enable the systematic study and characterization of both resolved star clusters, as well as unresolved (extragalactic star clusters) out to distances of tens of megaparsecs.

Collaboration Structure and Overview

Science Working Groups:





Chairs: Alexey Bobrick, Bolivia Cuevas Otahola, Angeles Perez Villegas



Variable Stars

Thanks to the long baseline of Rubin, the survey will reveal stars transient on a number of time scales

Joint with the Transient and Variable Stars Science Collaboration

Collaboration Structure and Overview

Science Working Groups:







Chairs: Peregrine McGehee, Steven Gough-Kelly

Galactic Structure and ISM

LSST will help us understand better the structure of the Milky Way and mapping interstellar dust distribution

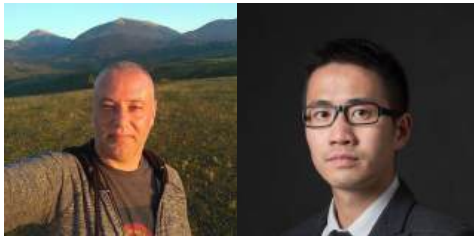
Collaboration Structure and Overview

Science Working Groups:

Local Volume

LSST can uncover detailed chemical abundances of stars in the Milky Way to infer the properties of the very first stars





Chairs: Massimo Dall'Ora, Haifeng Wang

Collaboration Structure and Overview

Science Working Groups Summary

- Solar Neighborhood

  Chair: John Gizis

- Variable Stars

  Alexey Bobrick, Bolivia Cuevas Otahola, Angeles Perez-Villegas

  Joint with TVS

- Star Clusters

  Co-chairs: Ana Chies Santos, Kristen Dage

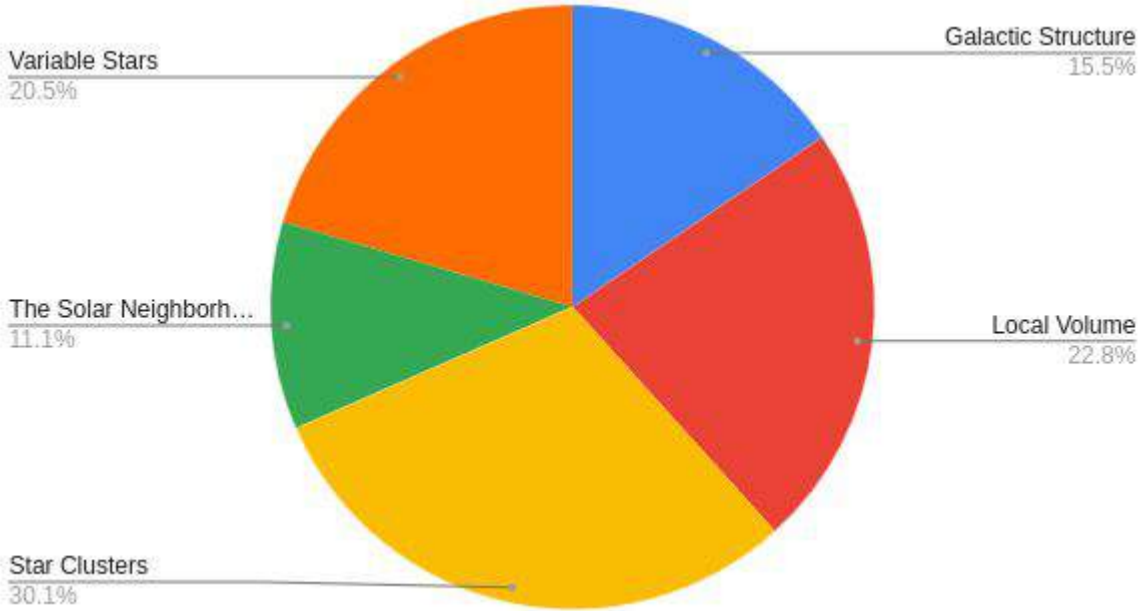
- Galactic Structure & ISM

  Chair: Peregrine McGehee, Steven Gough-Kelly

- Near Field Cosmology

  Chair: Massimo Dall'Ora, Haifeng Wang

Collaboration Structure and Overview

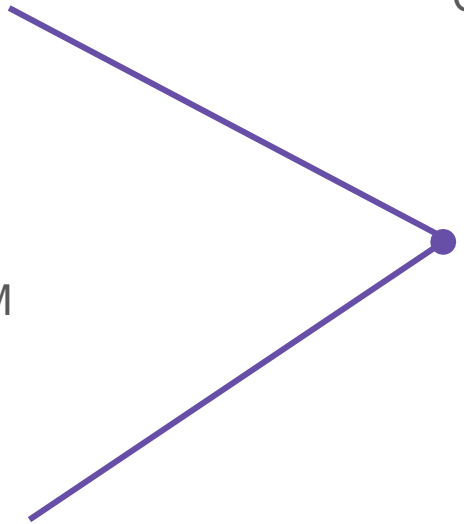


More information: https://rubin-smwlv.github.io/

Synergies with other science collaborations

Science Working Groups:

- Solar Neighborhood
- Variable Stars
- Star Clusters
- Galactic Structure & ISM
- Local Volume



Connections with **Task Forces**:

- Community discussion of Milky Way science and survey cadence
- **DESC**: Dark Matter
- **Galaxies**: Low Surface Brightness
- **TVS**: Crowded Stellar Fields
- **Galaxies**: Spectroscopic Globular Cluster Studies

Synergies with other science collaborations

- TVS
  - Strong and long-standing relationship, even held joint workshop at University of Delaware.
- DESC
  - connections thru near-field cosmology/dark matter
- Galaxies:
  - Extragalactic globular clusters
  - How Galaxies & SMWLV can complement understanding of galaxy structure and evolution.
  - and how fuzzy is the distance boundary between “local volume” and beyond?

Meetings and communication

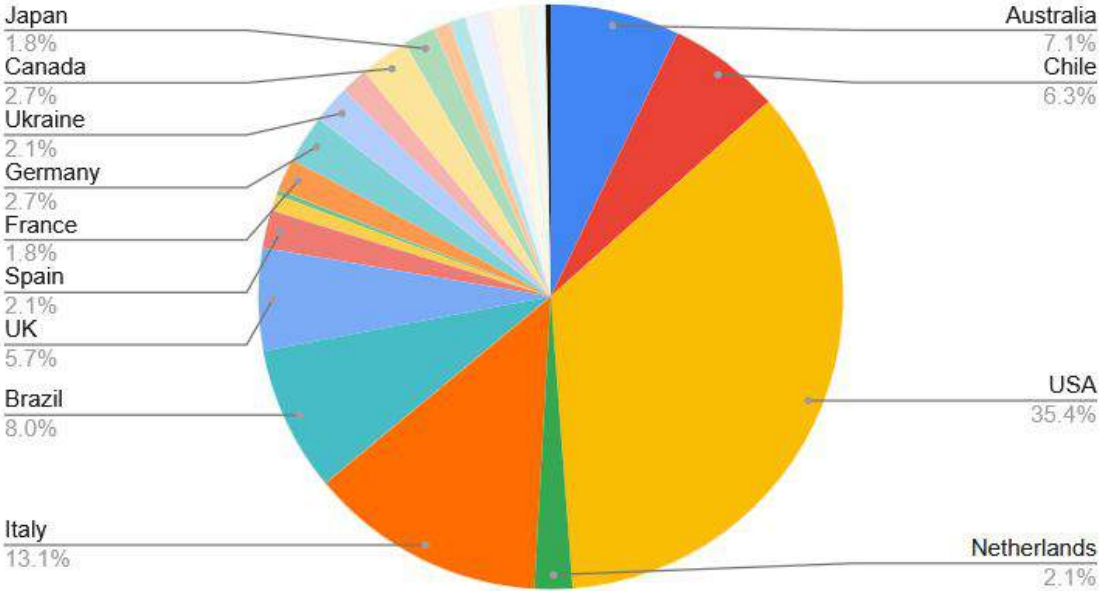
- Via zoom:
  - Monthly meeting cadence for SMWLV
  - Active science working groups and task forces also meet on a monthly basis

- Before the meeting:
  - Shared google calendar-meeting agenda and connection information shared via slack and email

- After the meeting
  - Livenotes shared to LSST community forum
  - Recording circulated

- Asynchronously:
  - Most discussions happen via slack, either in general channel for SMWLV, or individual channels for SWGs, task forces
  - LSST community forum (https://community.lsst.org/) useful for asking one-off questions, particularly from science team

Members of SMWLV

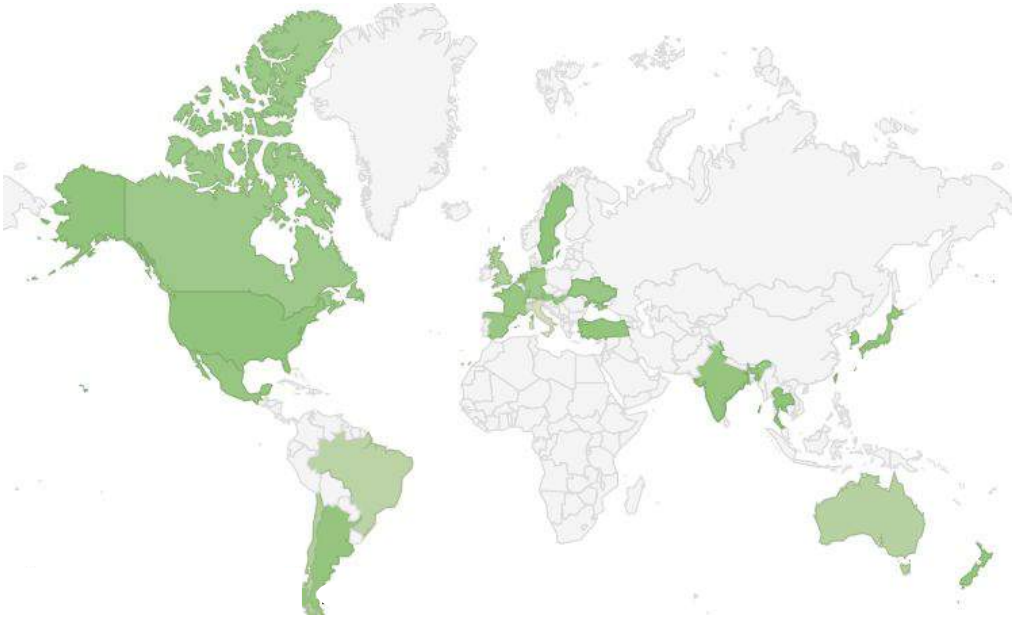


Just over 330 members, 25 countries and 4 continents (Asia, Oceania, Europe & the Americas) represented

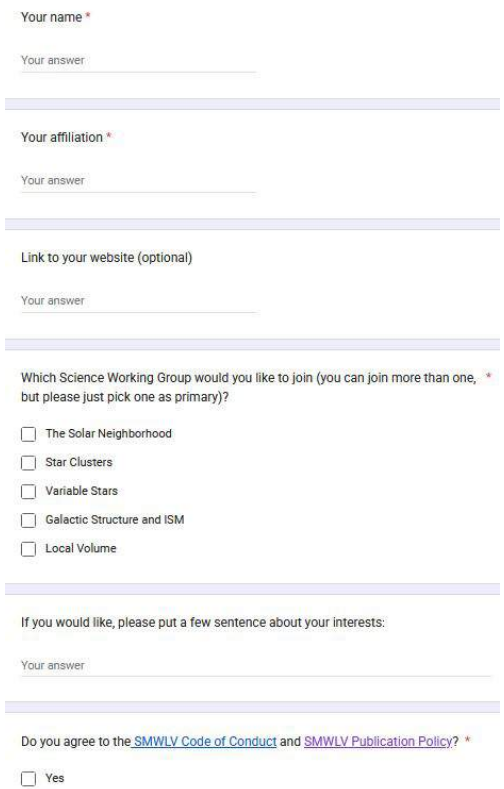
Membership and Data Rights Policy

SMWLV places no restrictions on members' institutional status, career stage, or LSST data rights access status.

SMWLV welcomes all individuals who can make a contribution to furthering SMWLV science.



Membership and Data Rights Policy



Your name *

Your answer

Your affiliation *

Your answer

Link to your website (optional)

Your answer

Which Science Working Group would you like to join (you can join more than one, but please just pick one as primary)? *

- [ ] The Solar Neighborhood
- [ ] Star Clusters
- [ ] Variable Stars
- [ ] Galactic Structure and ISM
- [ ] Local Volume

If you would like, please put a few sentence about your interests:

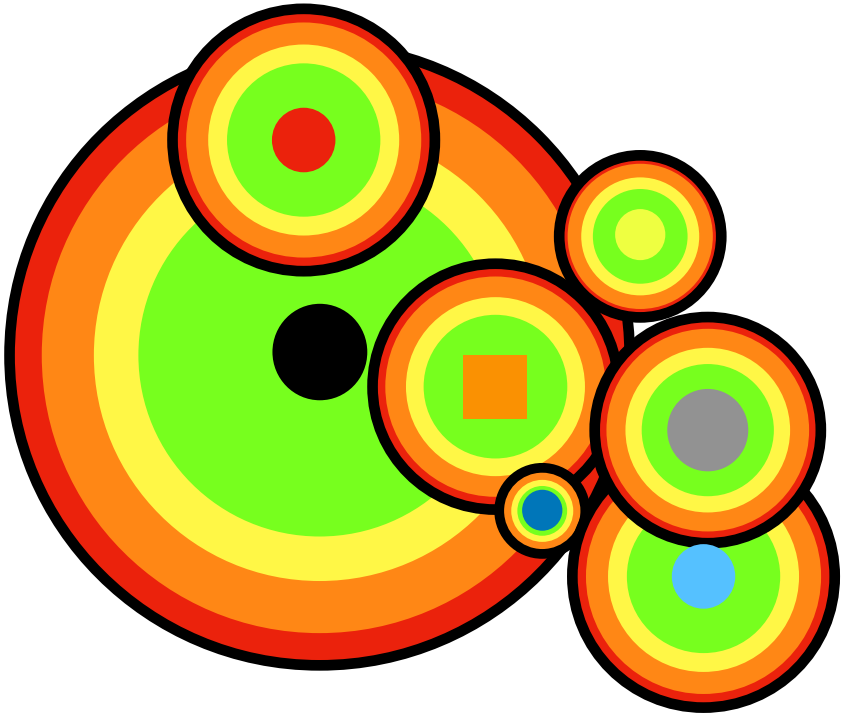
Your answer

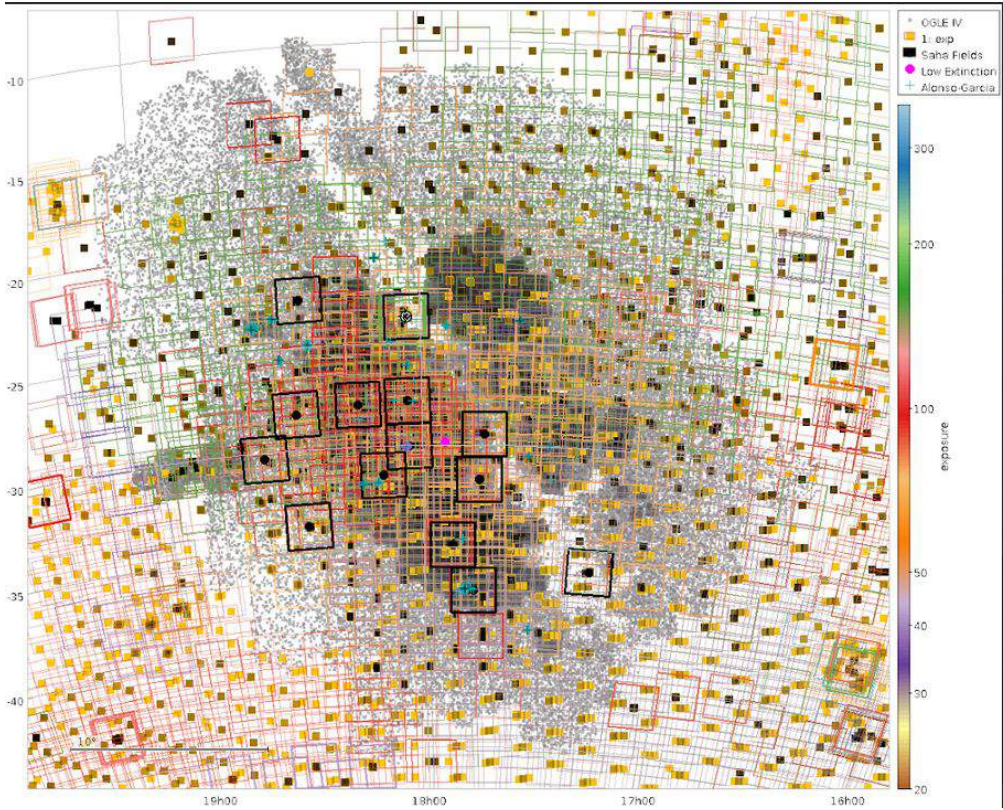
Do you agree to the SMWLV Code of Conduct and SMWLV Publication Policy? *

- [ ] Yes

https://rubin-smwlv.github.io/membership.html

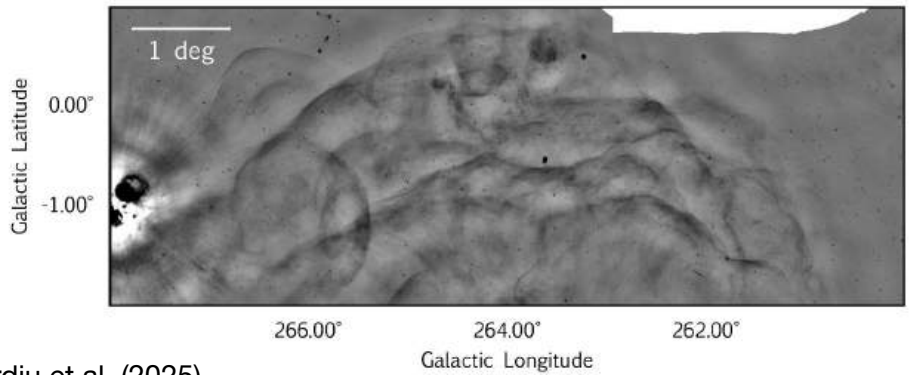
Our in-kind contributions



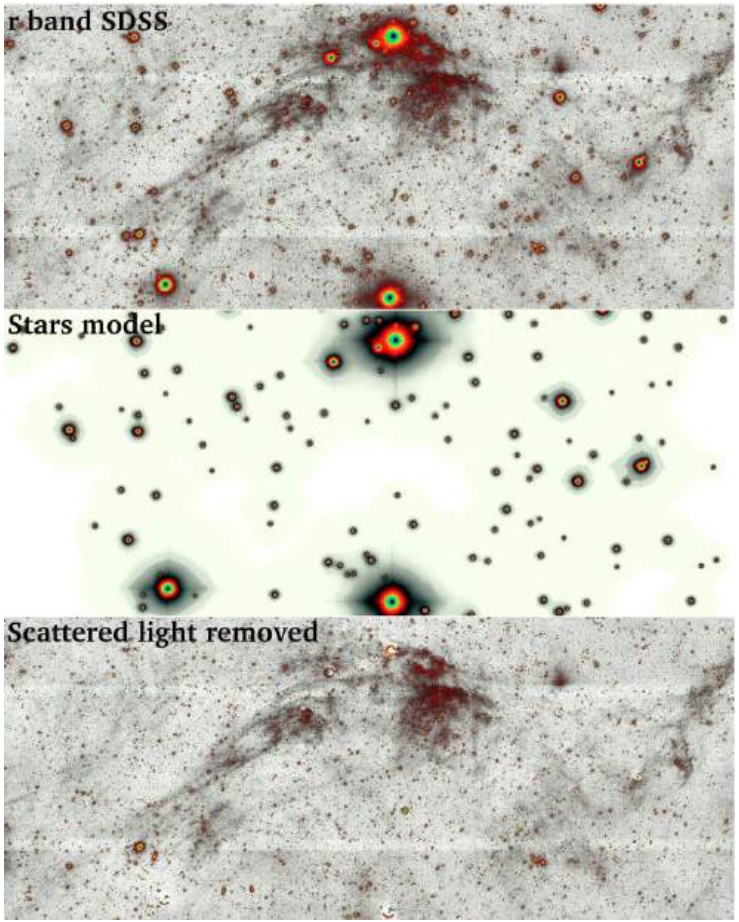


The Dusty Interstellar Medium

With its 10-square-degree field of view, Rubin will get excellent views of the large-scale Galactic ISM.
But how do you accurately extract fluxes/magnitudes for these structures with stars and galaxies overlaid?



Bordiu et al. (2025)



Román, Trujillo & Montes (2020)

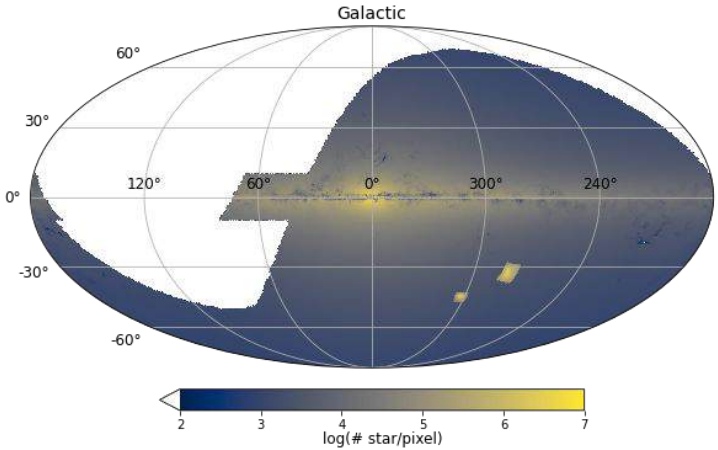
ITA-INA-S5

In-kind contribution ITA-INA S25: Popstar-LSST

- ★ Population models of LSST stellar content

  Popstar-LSST, PI Léo Girardi
- ★ **Non-directable software contribution**

  INAF-Padova (ITA-INA S25)
- ★ **TRILEGAL-LSST synthetic stellar catalogs**
  - Density maps, luminosity functions, crowding maps
  - Jupyter notebook tutorials
- ★ Support survey observing strategy
- ★ SMWLV SC (main recipient)



LSST Sim DR2 (Dal Tio, Pastorelli, .., Girardi + 2022)

- Single & Binary star catalogs in Astro Datalab
- Stellar density-luminosity functions for 6 filters used in MAF (maf.CrowdingM5)
- Dal Tio, Pastorelli et al. (2022)
- Jupyter notebooks
- Calculations @ DIRAC institute facilities

Contacts: leo.girardi@inaf.it | giada.pastorelli@inaf.it

SPICE4LSST

Contacts: leo.girardi@inaf.it | giada.pastorelli@inaf.it

Stellar **P**hotometric **I**ncompleteness and **C**rowding **E**rrors **for LSST** Data Releases

Targeted ASTs
Selected sky regions: ranges of brightness, colors, densities

TRILEGAL: Injection catalogs **LSST Science Pipelines** & **DaoLSST** (ITA-INA S10 in-kind M. Dall'Ora)

Completeness & photometric errors for known seeing and stellar density

Model-driven interpolation
Interpolation routines for any sky regions

Olsen+03: error amplitudes function of brightness distribution and seeing
TRILEGAL: stellar density for any sky region

Completeness, crowding errors, confidence intervals for any sky location

Verification
Error, completeness functions & confidence intervals verified w/ HST fields

What Can We Learn From Star Clusters?



Star clusters are groups of bound stars that provide valuable information of the host galaxies

It is possible to characterize their structure by extracting the profiles of their integrated light (fitting isophotes), called Surface Brightness Profiles (SBPs)

nProFit is a valuable tool to extract the SBPs, and obtain the sizes, masses, densities and concentration of samples of clusters in a given image by fitting King and Wilson models

nProFit is a modular code developed in Fortran and Python and is publicly available https://github.com/umbramortem

King:

$$f(\varepsilon) \propto \begin{cases} \exp(\varepsilon/\sigma_0^2) - 1, & \varepsilon > 0, \\ 0, & \varepsilon \leq 0, \end{cases}$$

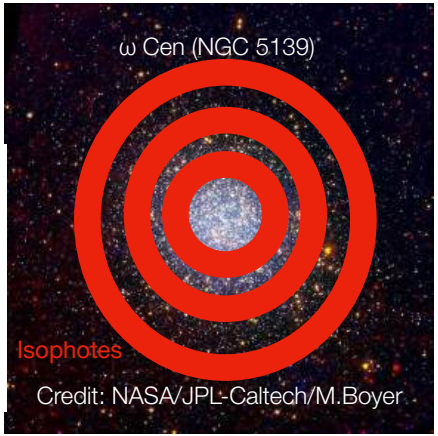
Wilson:

$$f(\varepsilon) \propto \begin{cases} \exp(\varepsilon/\sigma_0^2) - 1 + \frac{\varepsilon}{\sigma_0^2}, & \varepsilon > 0, \\ 0, & \varepsilon \leq 0, \end{cases}$$

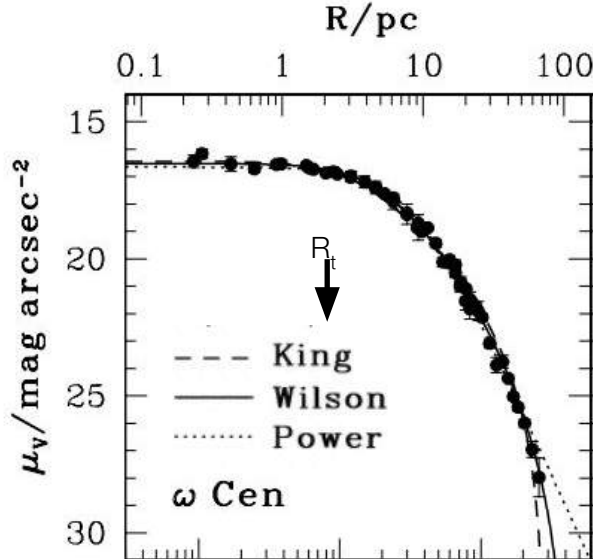
$$\sigma_0^2 \equiv \frac{4\pi G \rho_0 r_0^2}{9}$$

King (1962)

Star Cluster



McLaughlin & Van der Marrel 2005



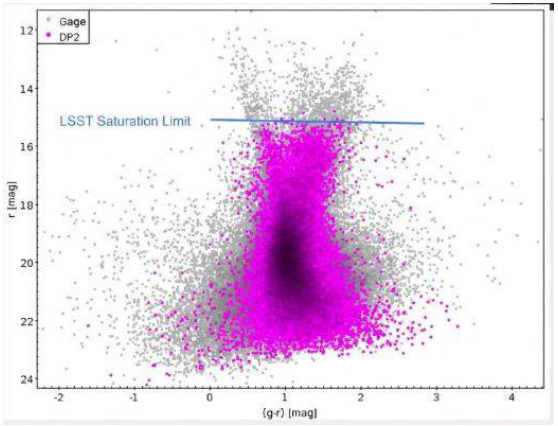
MEX-UNA-S4

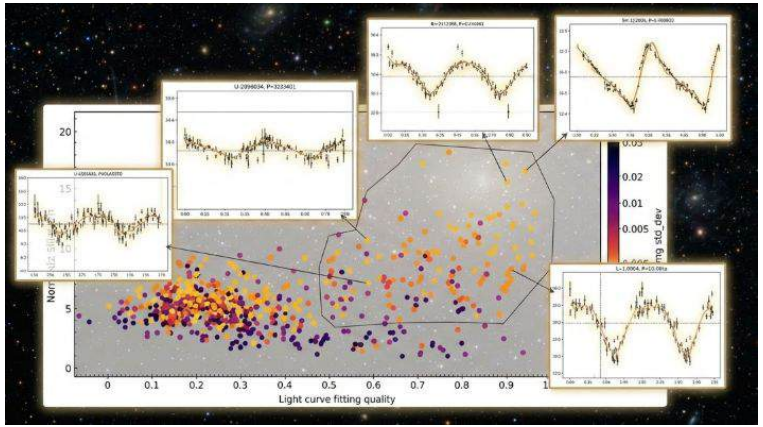


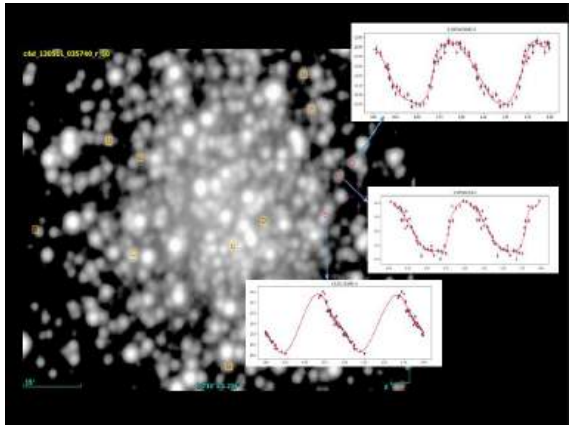
The Crowded Stellar Fields Task Force

A joint SMWLV-TVS Task Force

Current work: high-precision photometry in the crowded stellar fields; validation of the DP-DR catalogues; testing in-kind contributions

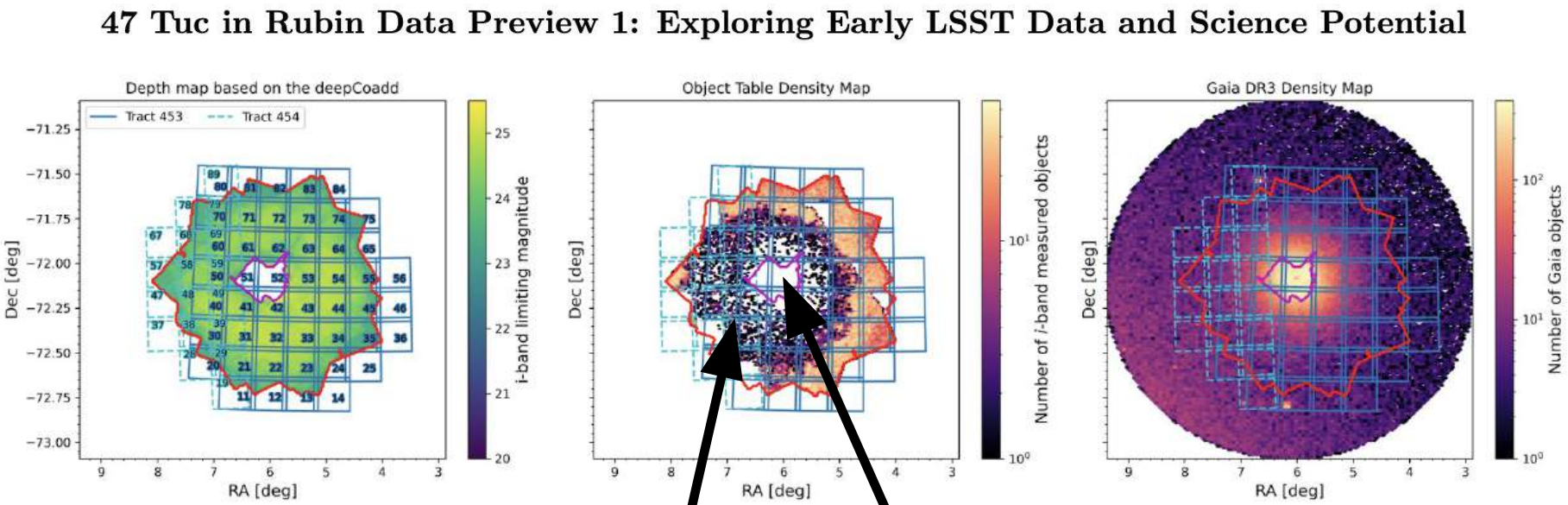






Most excited for from Rubin: "*To boldly go where no one has gone before*"

Understanding (the Weaknesses of) the LSST Pipeline



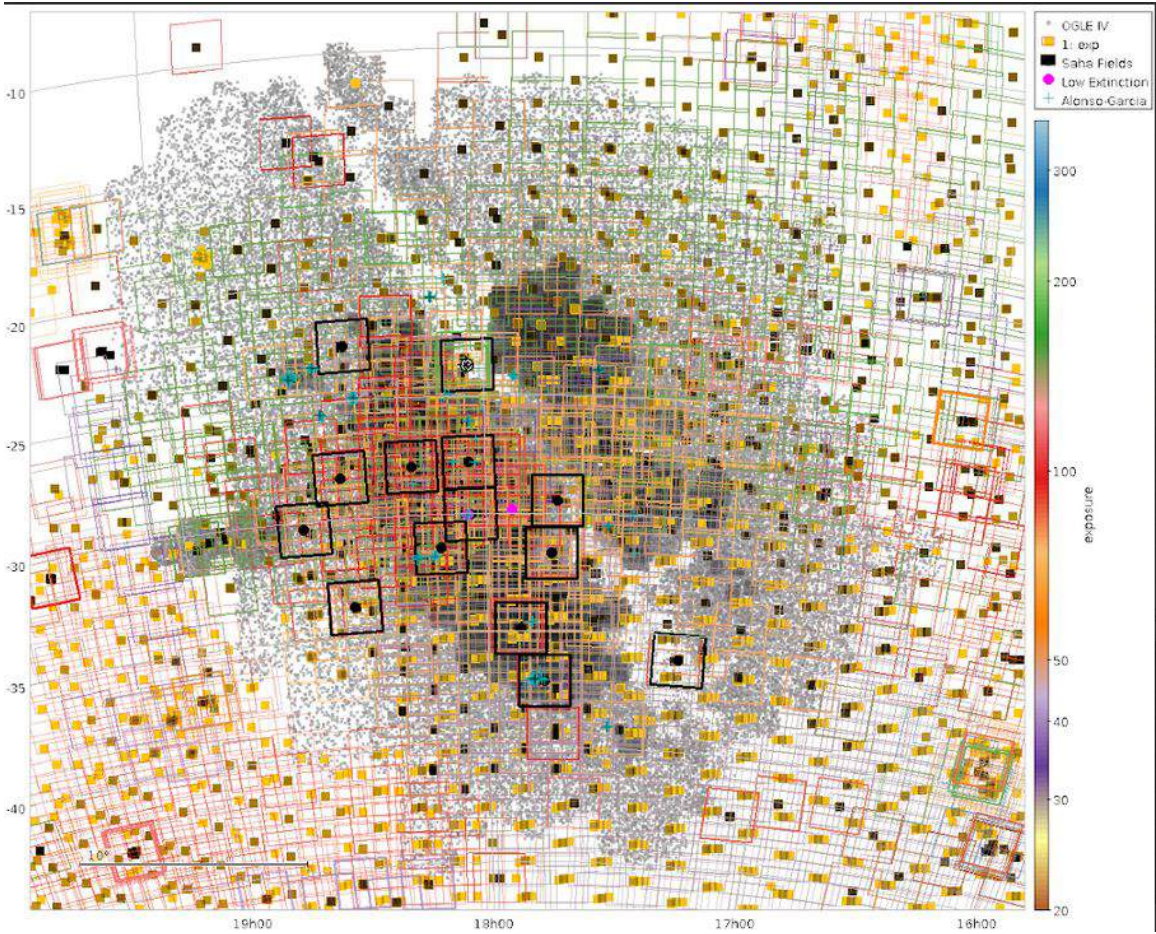
Saturation — can we profile-fit the wings of saturated objects?

Artificially low counts — why are we failing to detect these objects?

Choi et al. (2025), https://arxiv.org/abs/2507.01343

A test dataset

- Excellent DECam data of the Galactic bulge are available at the Noirlab Archive
- The dataset includes the six “Saha’s Fields”, discussed in Saha et al. 2019
- The scientific goal is a reddening and metallicity map, based on RR Lyrae stars
- Other fields have been added, bringing the Saha’s fields to 14

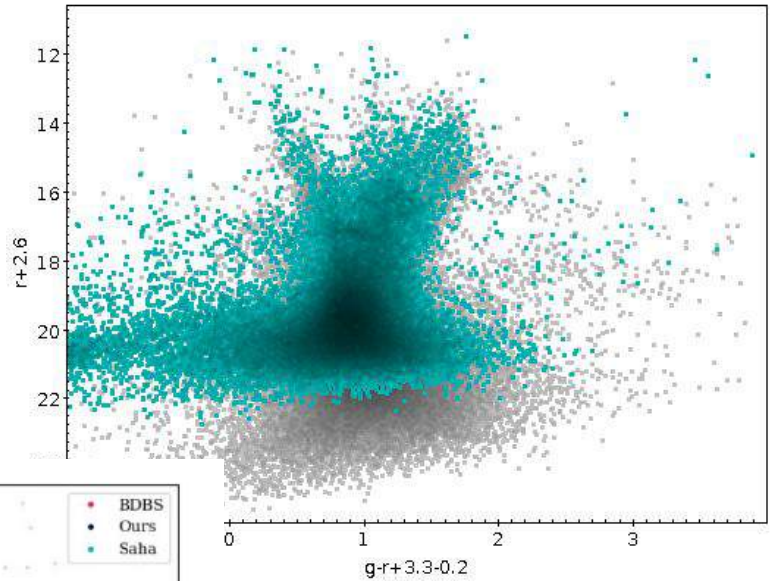


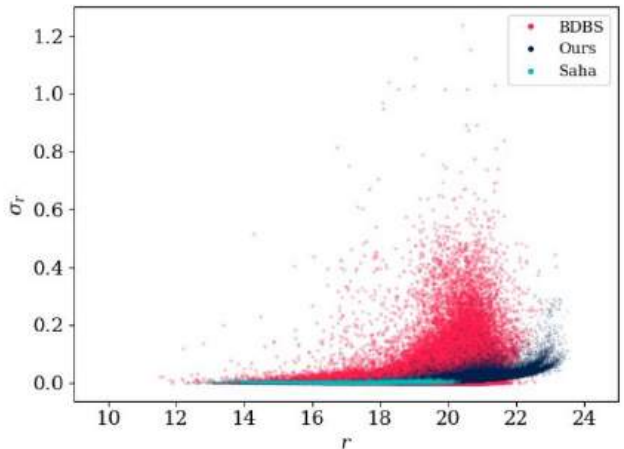
ITA-INA-S10

Automatic PSF photometry pipeline

- Bash scripts to drive a fully automatic (no human intervention) reduction of the DECam data, based on Daophot IV / Allstar
- Makes use of SExtractor and custom Fortran routines, to remove the outliers from the PSF stars list
- Allframe run available with a little manual intervention to align the catalogs and generate the input star list
- Can be adapted to other instruments
- In-kind contribution: **preliminary** release available Here
- **Contact** the authors for assistance and hints

- CMD in the area around NGC 6569. Grey points are the photometry provided by the data reduced with the pipeline. Cyan points are the BDBS photometry.
- Note that the expected Rubin-LSST single-visit photometric limit is around 24

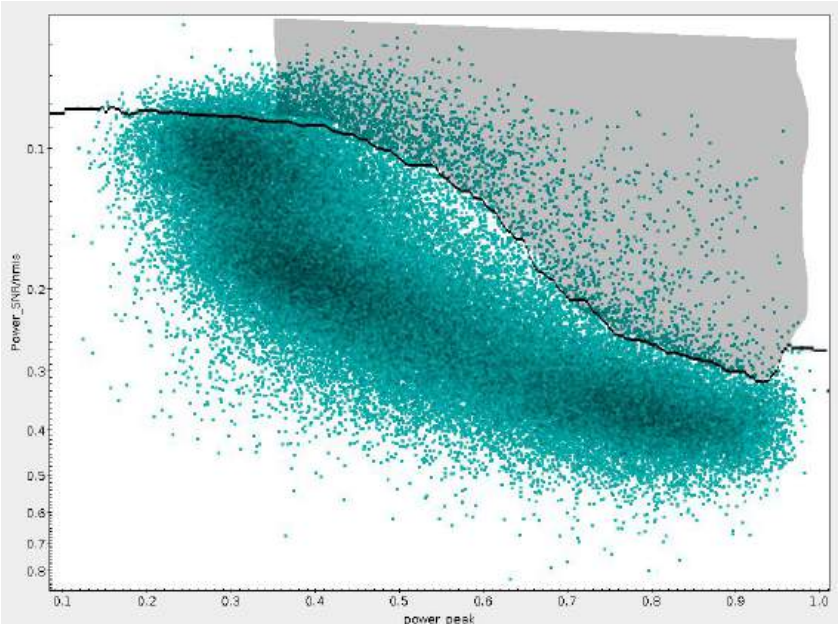




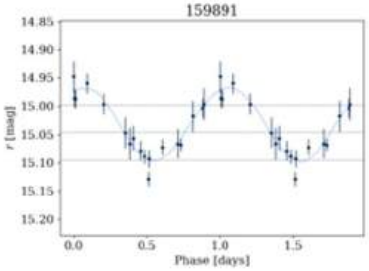
Run of the photometric error in BDBS, Saha, and the present pipeline

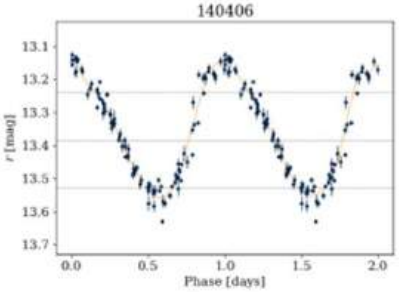
ITA-INA-S10

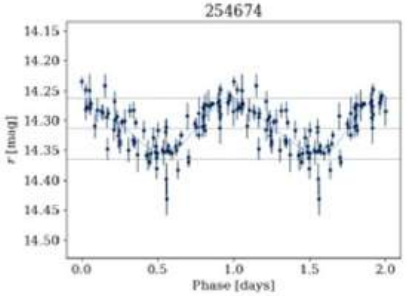
Variability search and characterization



Candidates selection from the Generalized Lomb-Scargle analysis. Here is plotted the GLS power peak, vs. the power S/N ratio. Black line is the 95th quantile of the distribution. In this plane, stars above this limit (shaded area), are the strongest candidates.





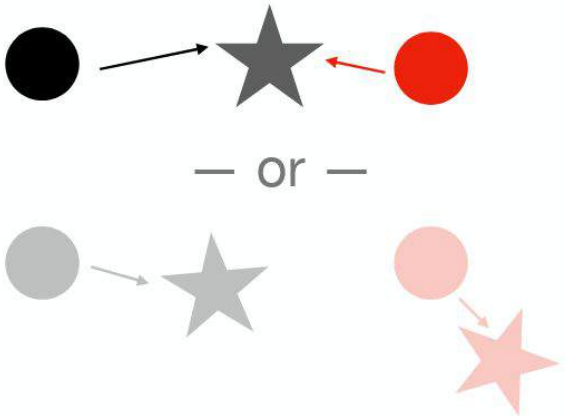


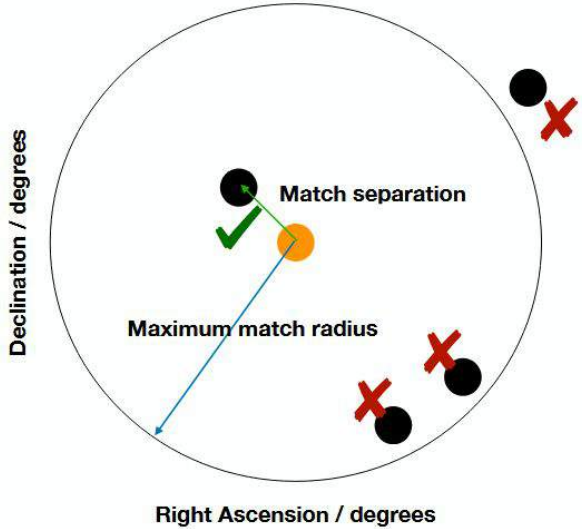
Examples of light curve fitting with automatic outliers rejection (with the RANSAC algorithm) Lines show the mean magnitude and the 3-sigma interval

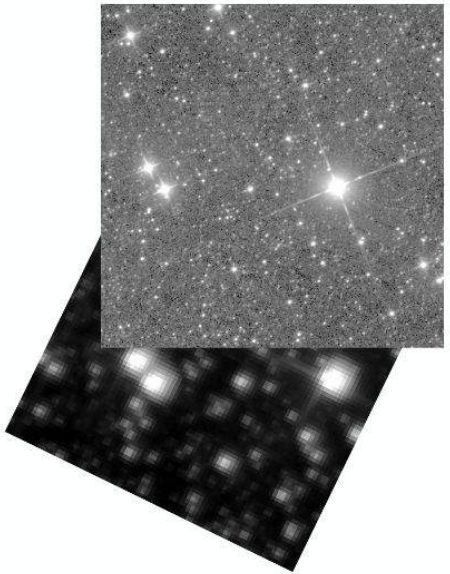
The code computes the mean magnitude and amplitude, and the associated errors

Python code available on request

Astrometry in the Galactic Plane

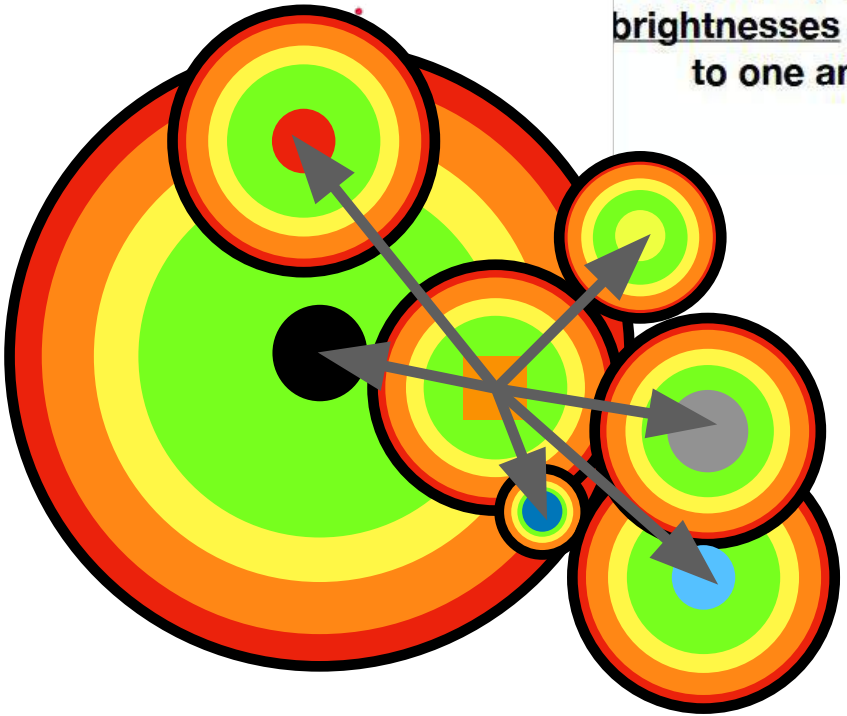






UKD-UKD-S9

Astrometry in the Galactic Plane

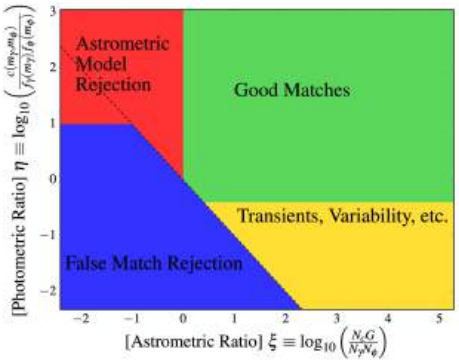


Probability of sources having their brightnesses given they are unrelated to one another ("field stars")

Probability of sources having their brightnesses given they are counterparts

Wilson & Naylor (2018a)

"Were the succession of stars endless... there could be absolutely no point, in all that background, at which would not exist a star."
— Edgar Allan Poe, Eureka (1848)

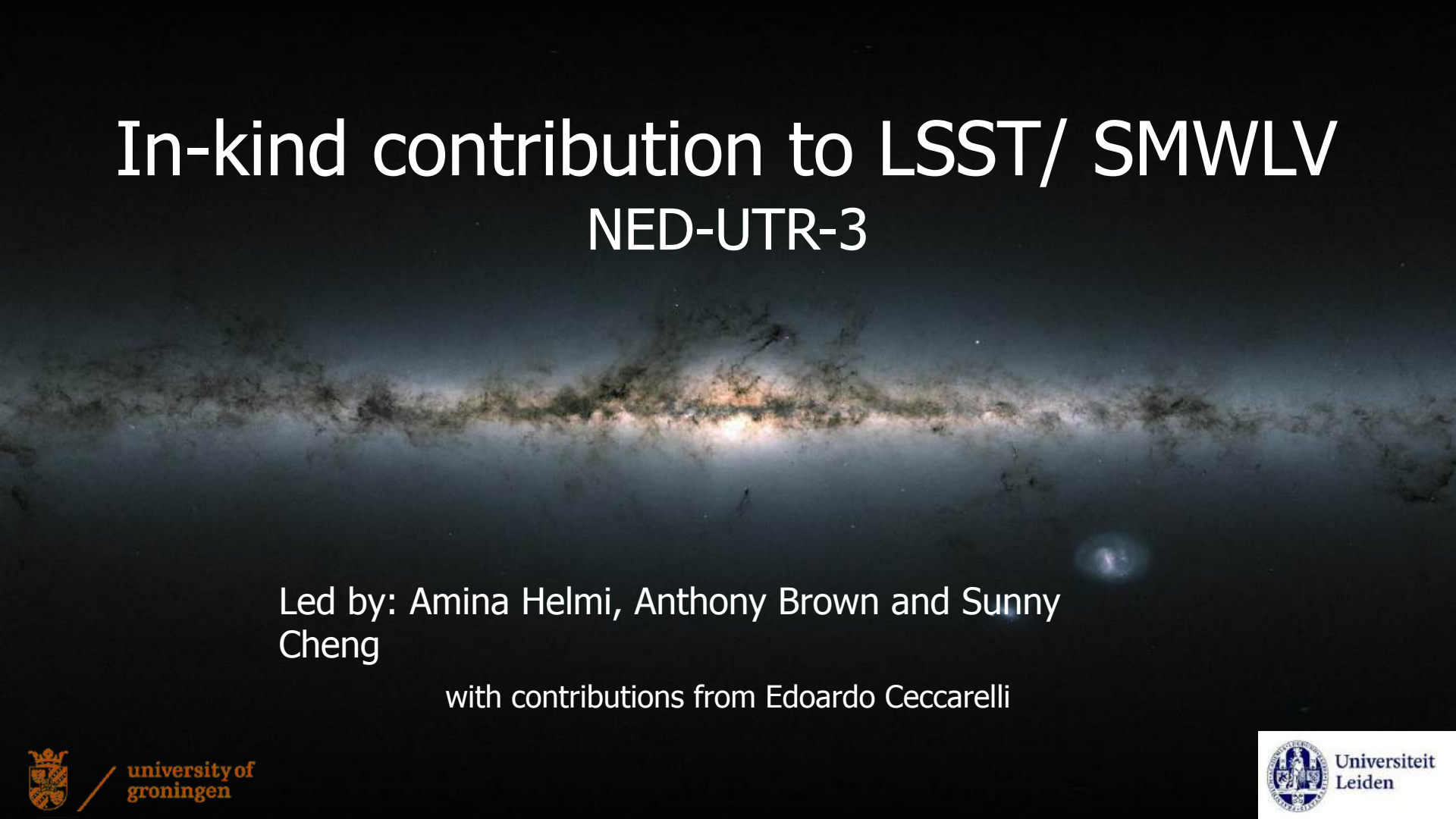




UKD-UKD-S9

In-kind contribution to LSST/ SMWLV

NED-UTR-3



Led by: Amina Helmi, Anthony Brown and Sunny Cheng

with contributions from Edoardo Ceccarelli

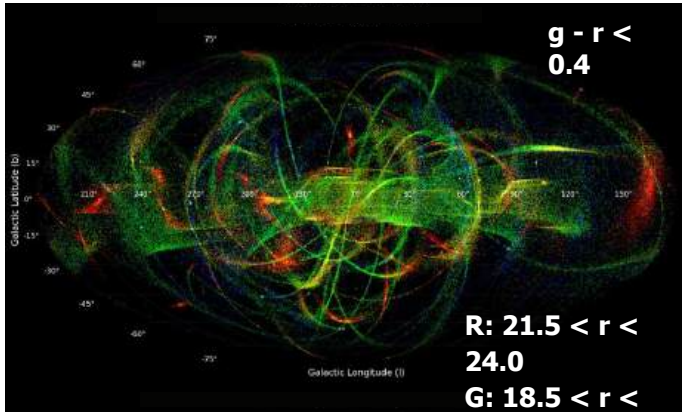
university of groningen

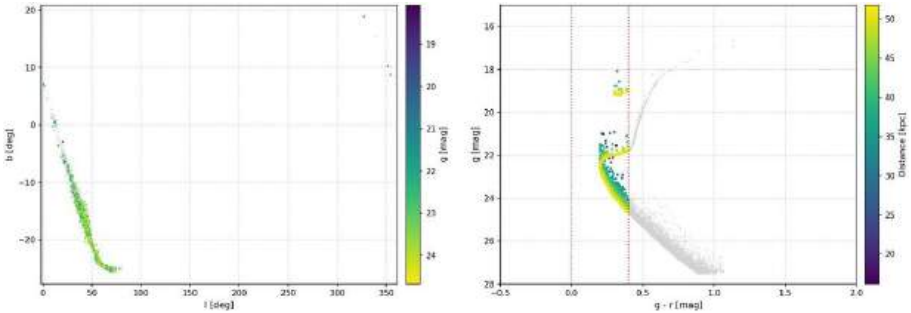
Universiteit Leiden

Development of a stream detection tool for use by the whole LSST consortium

Mock LSST stream catalogue: 'A sky full of streams'

- **Streams:** 100 globular cluster-like progenitors (10 pc scale-radius, 5 x 10^4 M_{sun}, 5 x 10^4 particles) on orbits sampled from distribution function representing radially anisotropic spherical halo, evolved in MW-like potential for 10 Gyr (including self-gravity)
- **Observables:** position, proper motion + LSST absolute magnitudes and colors (from old and metal-poor PARSEC isochrone)
- **Next steps:** errors on observables + Galactic foreground/background contamination



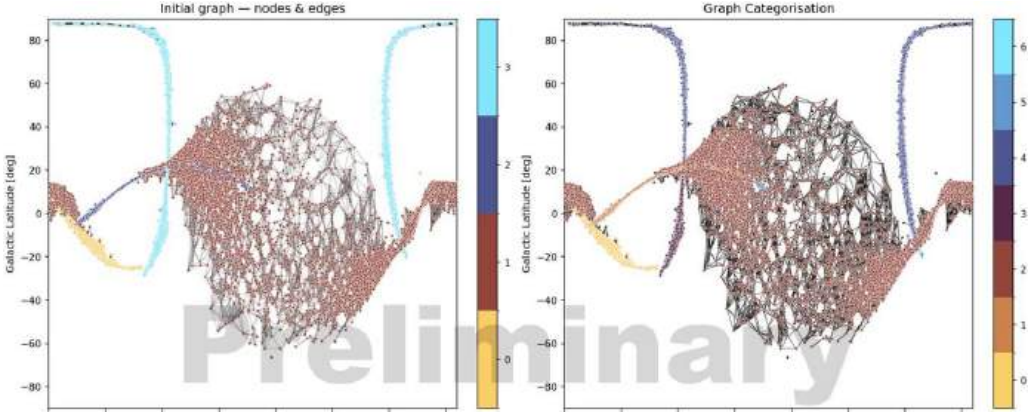


Stream detection based on graph neural network: **method and first results**



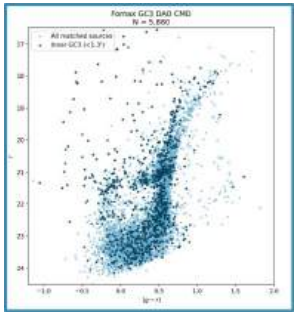
The way stars connect to each other is like a social network

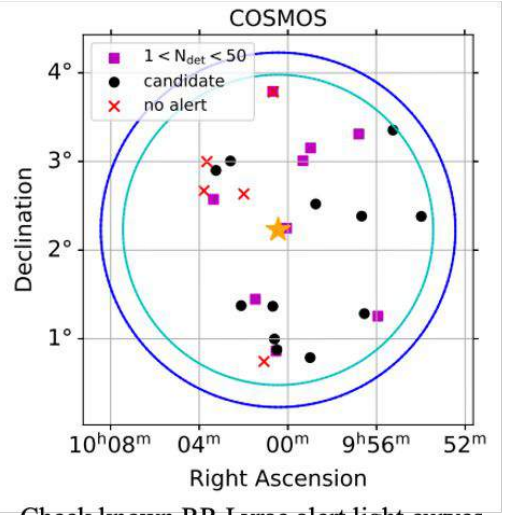
- Each star is a **node**, each connection is an **edge**
- Initial graph built through **Nearest Neighbour** using **sky position**
- Relations between connected stars **weighted** by **proper motion, magnitude** (distance)
- Graph is built on **adjacency matrix**
- **Next steps**: refine edge relations + add flexibility to accommodate only photometry and errors + membership probability



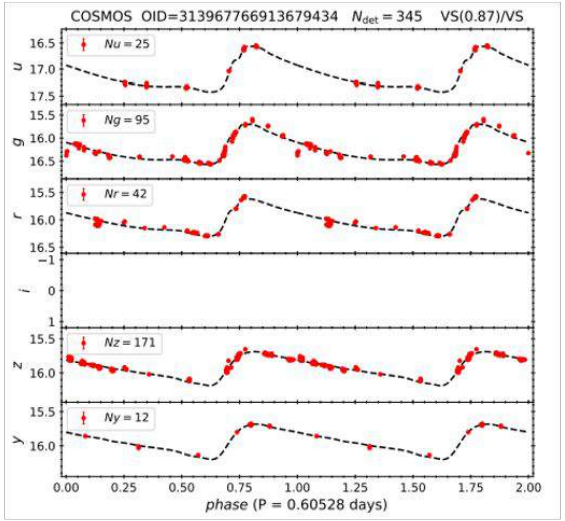
Detected group	-1	0	1	2	3	4	5	6
True stream								
0	1402	48599	0	0	0	0	0	0
1	1460	0	0	48541	0	0	0	0
2	1396	0	48588	0	0	0	17	0
3	1355	0	0	0	45694	2935	0	17

Our people





Check known RR Lyrae alert light curves, N_{det} = number of detection in alerts



Alert light curves confirm this star is RR Lyrae



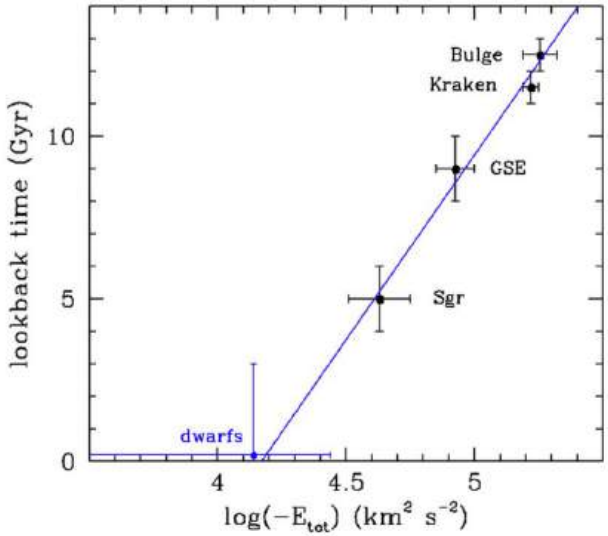


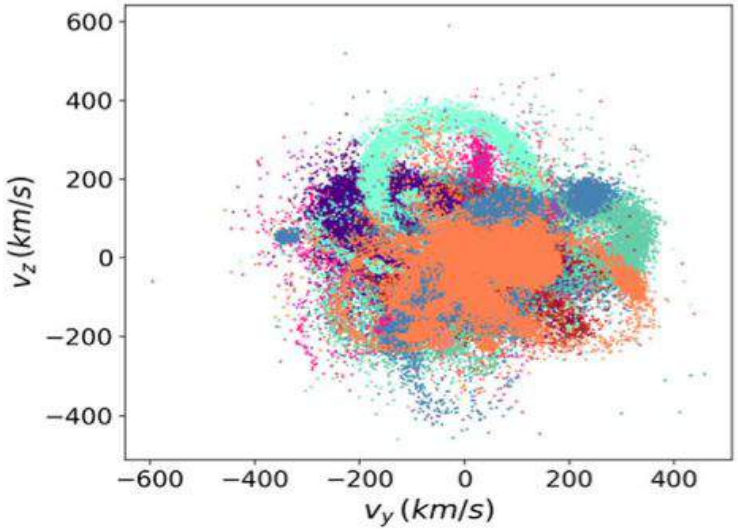
Haifeng Wang: Near-Field Cosmology, Streams, Bulge and Magellanic clouds topics;

***haifeng.wang.astro@gmail.com*;**

Co-chair of NFC, as of now: 78 colleagues; Welcome.

Will use LSST+spectroscopic data products;





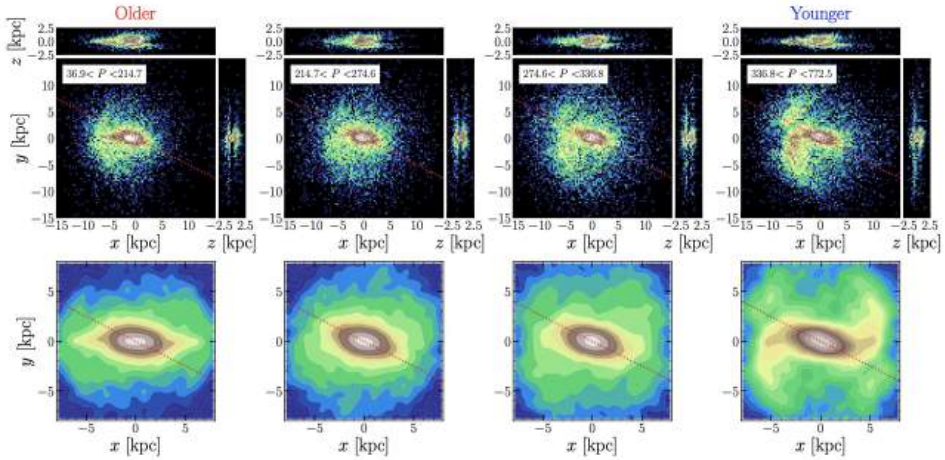


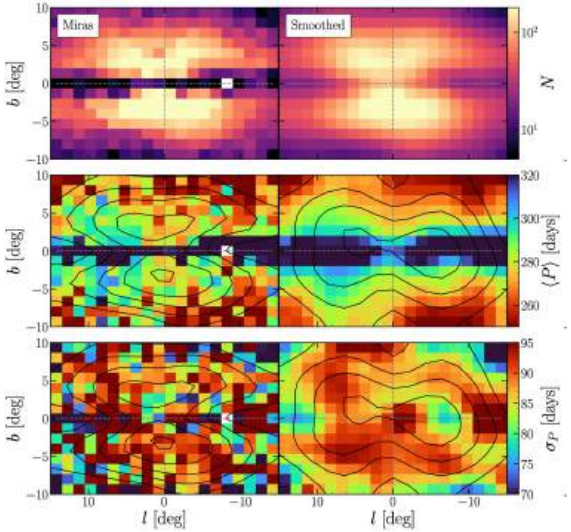
Steven Gough-Kelly : Galactic Dynamics

sgoughkelly@gmail.com

Current work: Using long period variables to trace Galactic structure and evolution.

Combining efforts from the *Galactic Structure and ISM* and *Variable Stars* Working Groups





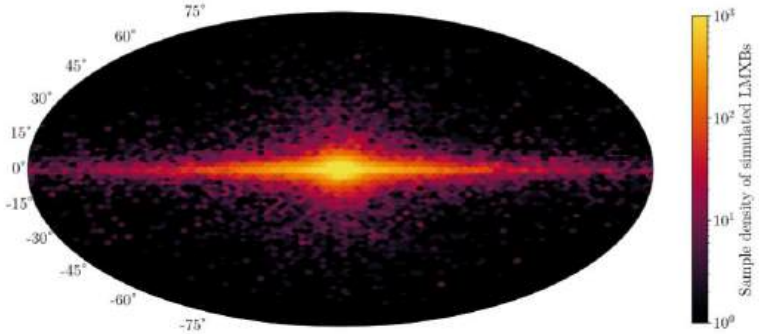
Gough-Kelly *et al.* (2026, MNRAS accepted)

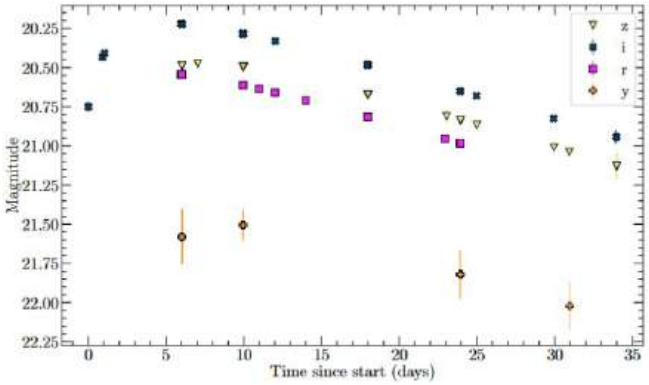
Most excited for from Rubin: The long baseline observations of variables across the Milky Way and astrometric measurements.

Susmita Sett - X-ray binaries in outburst



Current work: Determining impact of observing cadence on X-ray binaries in outburst.





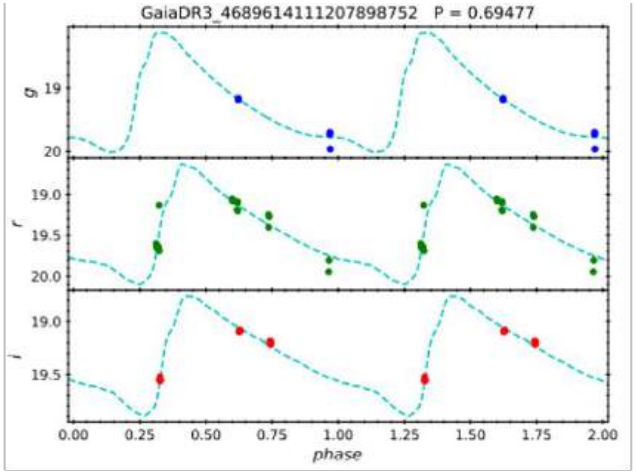
Most excited for from Rubin: The capacity for early detection of black holes or neutron stars in outburst.



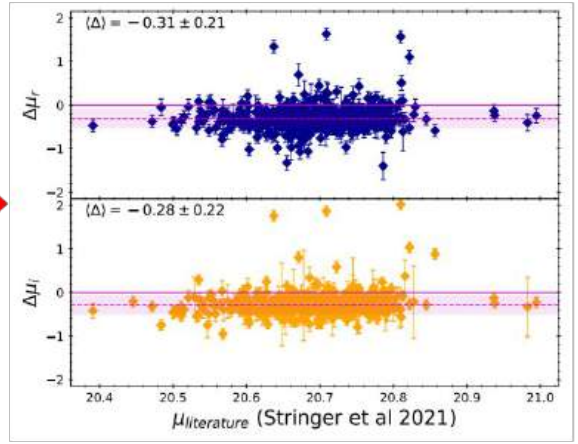
Chow-Choong Ngeow : Pulsating Variables

cngeow@gm.astro.ncu.edu.tw

Variable Stars in Early Data Releases and Alerts



DP1 RR Lyrae light curves could be sparse:
fitting with template light curve (Braga et al 2024) to obtain mean magnitudes



Apply theoretical P-L relations (Marconi et al 2022) show a systematic offset on derived distance moduli:
problem on theoretical relations or on the data?

Exploring RR Lyrae Variable Stars in the Vera C. Rubin Observatory Data Preview 1

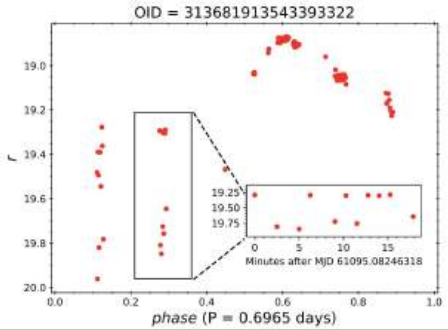
Chow-Choong Ngeow[1,2] and Anupam Bhardwaj[3]
[1] Graduate Institute of Astronomy, National Central University, 300 Jhongda Road, 32001, Jhongli, Taiwan; cngeow@astro.ncu.edu.tw
[2] Taiwan Astronomical Research Alliance (TARA), Taiwan
[3] Inter-University Center for Astronomy and Astrophysics (IUCAA), Post Bag 4, Ganeshkhind, Pune 411 007, India
Received 2026 February 5; revised 2026 April 29; accepted 2026 April 30; published 2026 June 2



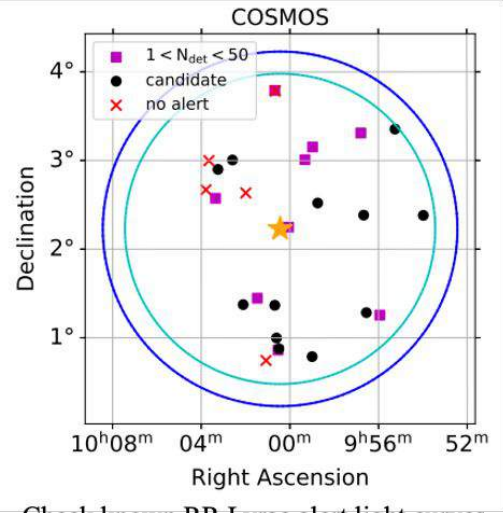
Chow-Choong Ngeow : Pulsating Variables

cngeow@gm.astro.ncu.edu.tw

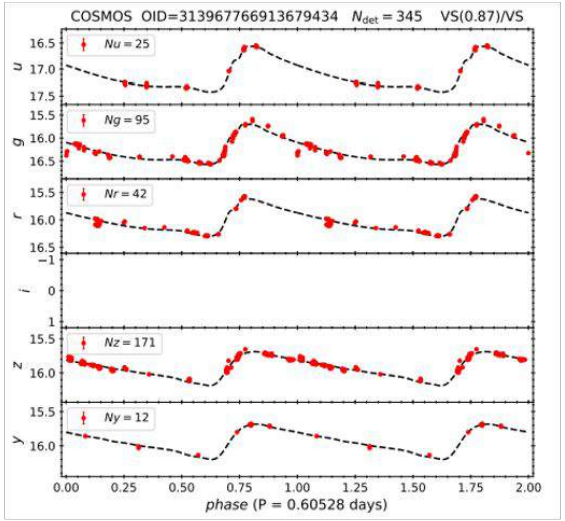
Variable Stars in Early Data Releases and Alerts



Intranight variability in early release data



Check known RR Lyrae alert light curves, N_{det} = number of detection in alerts



Alert light curves confirm this star is RR Lyrae

A Pilot Study to Verify the RR Lyrae Candidates with Vera C. Rubin Observatory Early Alerts

Chow-Choong Ngeow[1,2], Anupam Bhardwaj[3], Sarang Shah[3], Steven Gough-Kelly[4], and Oleksandra Razim[5]
[1] Graduate Institute of Astronomy, National Central University, 300 Jhongda Road, 32001 Jhongli, Taiwan; cngeow@astro.ncu.edu.tw
[2] Taiwan Astronomical Research Alliance (TARA), Taiwan
[3] Inter-University Center for Astronomy and Astrophysics (IUCAA), Post Bag 4, Ganeshkhind, Pune 411 007, India
[4] Jeremiah Horrocks Institute, University of Lancashire, Preston PR1 2HE, UK
[5] Center for Astrophysics and Cosmology, University of Nova Gorica, Vipavska 11c, 5270 Ajdovščina, Slovenia
Received 2026 May 31; revised 2026 June 15; accepted 2026 June 16; published 2026 July 10

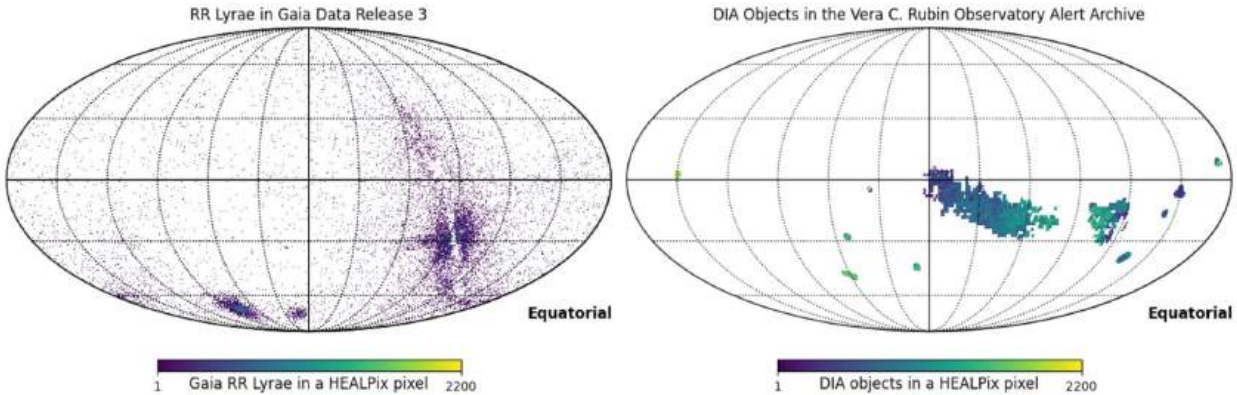


Chris Hernández: Looking for RR Lyrae stars using public alerts

chh226@pitt.edu

Characterizing the population of RR Lyrae stars using alerts data through Pitt Google broker.

RRLs offer a great opportunity to study galactic structure

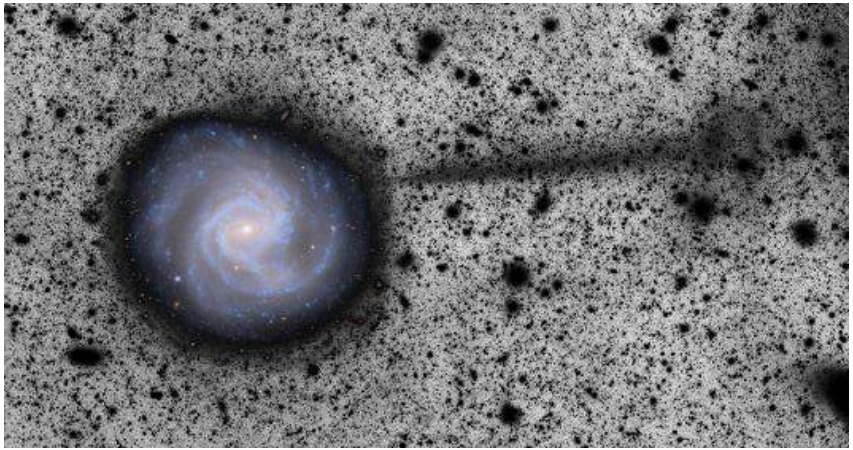


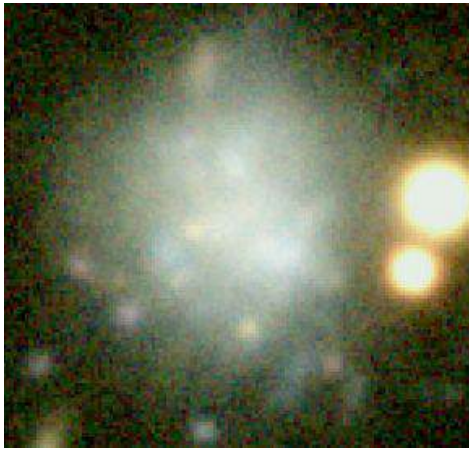


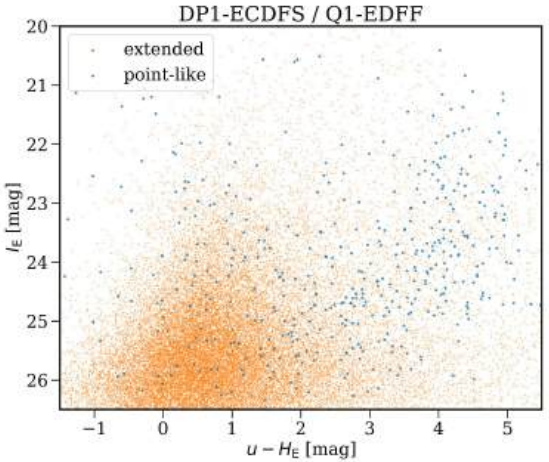
Aaron Romanowsky : small & faint stellar systems

San José State University (USA); aaron.romanowsky@sjsu.edu

Current work: globular clusters; ultra-diffuse galaxies; extragalactic stellar streams; synergies with DESI, *Euclid*, *Roman*







Most excited for from Rubin: students making exciting discoveries

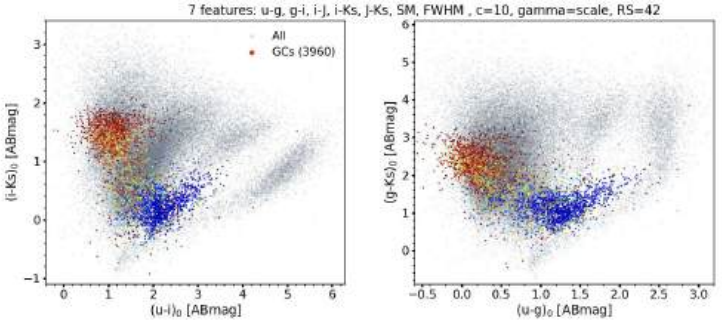


Yasna Ordenes Briceño: Extragalactic Globular Clusters in different environments

Universidad Diego Portales (Chile); yasna.ordenes@mail.udp.cl

Current work: **Globular clusters in different type of galaxies and in low & dense environments. **Machine Learning methods to classify GC candidates from other contaminants, foreground stars and background galaxies. **Synergies with Euclid, Roman and other archival data. Spectroscopy follow-up with: *IFU (e.g. MUSE) or Multi-Object Spectrograph (e.g. GMOS).*









Ana Chies Santos

UFRGS, Porto Alegre (Brazil): ana.chies@ufrgs.br

Current work: extragalactic globular clusters as probes of galaxies and their environments, star forming clumps/star clusters in jellyfish galaxies and beyond



Charles Bonatto



Pedro Floriano (Msc)



Pedro Lopes (Msc)



Marco Canossa - Gosteinski (PhD)



Andressa Wille (Phd)



Rafael S. de Souza



Thayse Pacheco (postdoc)



Miguel Santamaría (PhD)



Nicholas Schweder (Msc)



Micheli-Moura (Postdoc)



Carlos Melo (Postdoc)



Niranjana P. (Phd)



Ana Chies Santos

UFRGS, Porto Alegre (Brazil): ana.chies@ufrgs.br

Current work: extragalactic globular clusters as probes of galaxies and their environments, star forming clumps/star clusters in jellyfish galaxies and beyond



Charles Bonatto

The contribution of the color space in LSST-like photometry for the selection of extragalactic globular cluster candidates

Nicholas Schweder-Souza,[1,2] Ana L. Chies-Santos,[3,2] Rafael S. de Souza,[4,3,5] Kristen C. Dage,[6] Charles J. Bonatto,[3,2] Juan P. Caso,[7,8] Michele Cantiello,[9] Pedro dos Santos-Lopes,[3,2] Pedro Floriano,[3,2] Thayse A. Pacheco,[3,10] Katherine L. Rhode,[11] Pauline Barmby,[12] Jennifer Sobeck,[13] Ana I. Ennis,[14,15] Yasna Ordenes-Briceño,[16] Teymoor Saifollahi,[10,17] Julia Gschwend,[2] Niranjana P.[3,2] and Rubens E. G. Machado[1]

for the LSST Star Clusters working group

Pedro Floriano (Msc)



Thayse Pacheco (postdoc)

Pedro Lopes (Msc)



Miguel Santamaría (PhD)

Marco Canossa - Gosteinski (PhD)



Nicholas Schweder (Msc)

Andressa Wille (Phd)



Micheli-Moura (Postdoc)

Rafael S. de Souza



Carlos Melo (Postdoc)



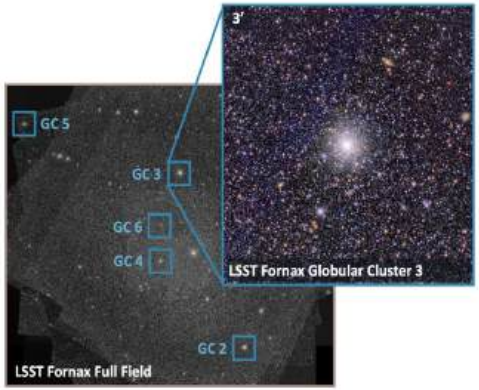
Niranjana P. (Phd)

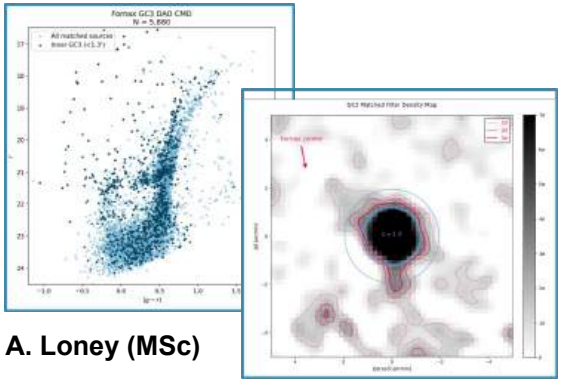


Pauline Barmby

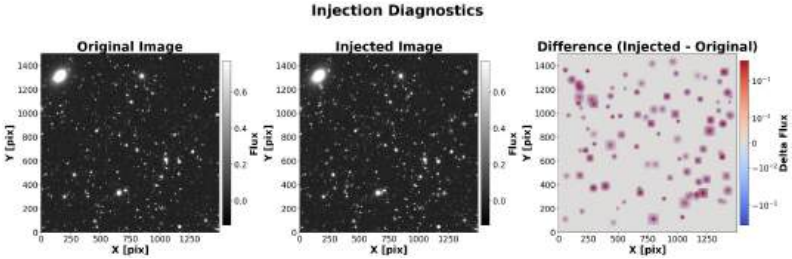
Western University (Canada): pbarmby@uwo.ca

Current work: Fornax cluster structure, nearby galaxy star cluster systems, star cluster injection tests, CanDIAPL (Canadian software infrastructure for LSST/ASKAP)





A. Loney (MSc)



S. Nair

Meet our team: https://nearby-galaxies.github.io/people/, https://www.candiapl.ca/team

Most excited for from Rubin: All the nearby/LSB galaxies and their star clusters!!

Support: Canada Foundation for Innovation (CFI),Natural Sciences & Engineering Research Council (NSERC) of Canada



Open star clusters: morphology, dynamics, exotic stellar populations & stellar rotation

Khushboo K Rao

Post doctoral Researcher

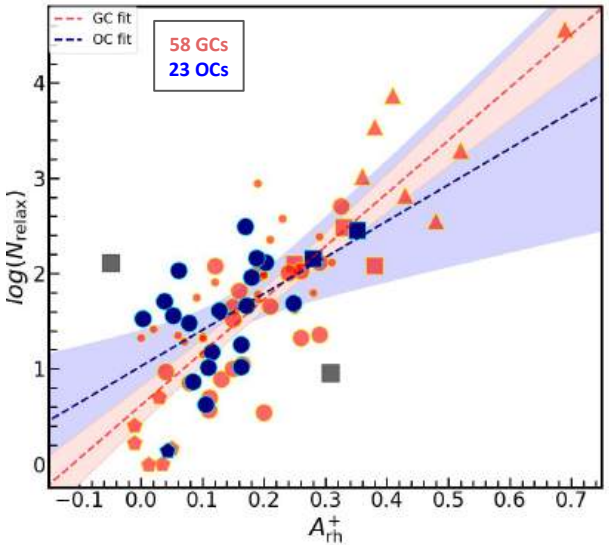
Institute of Astronomy, National Central University, Taiwan

Relative central segregation of blue straggler stars → $\mathbf{A^+_{rh}}$

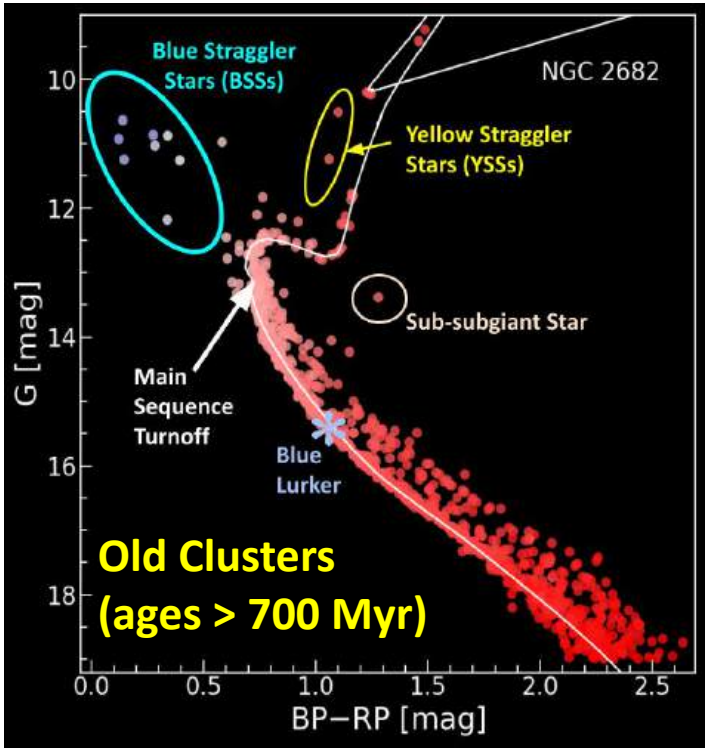
vs.

Number of central relaxations of a cluster → $\mathbf{N_{relax}}$

Open clusters follow a similar dynamical ages trend as globular clusters



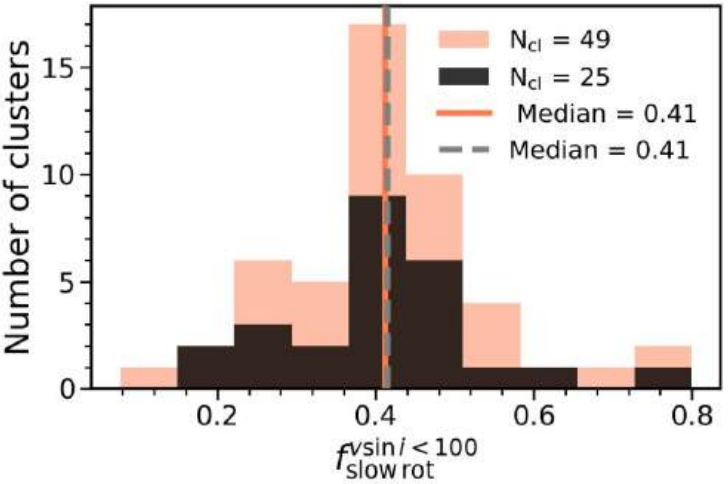
Rao K.K., et al., 2021 & 2023



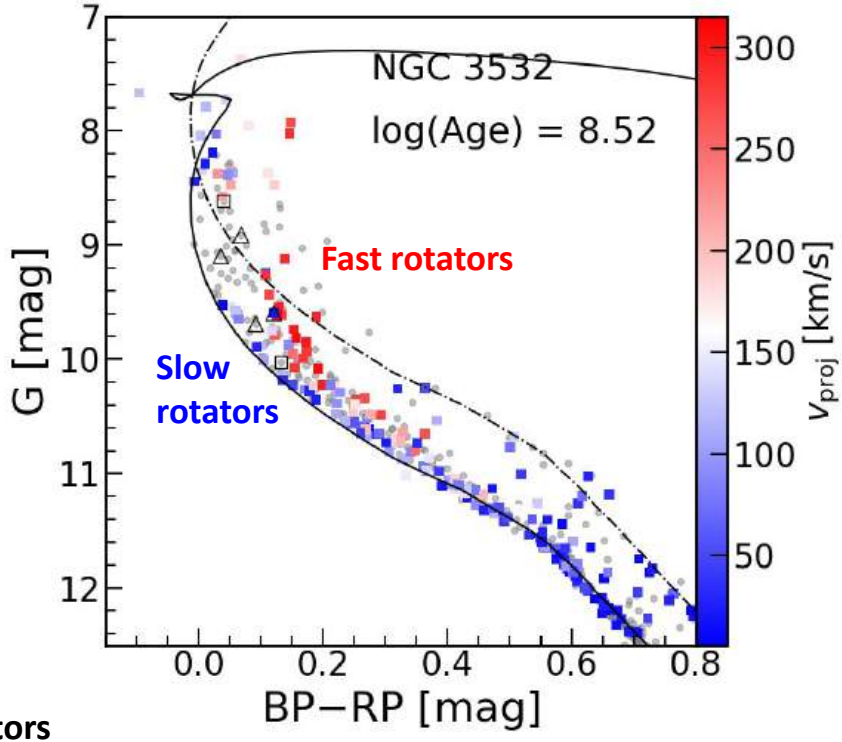


Open star clusters: morphology, dynamics, exotic stellar populations & stellar rotation

Khushboo K Rao
Post doctoral Researcher
Institute of Astronomy, National Central University, Taiwan



Young Clusters (ages < 2 Gyr)



About 40% of intermediate-mass stars are slow to moderate rotators

Rao K.K., et al., 2026

Investigating transient populations in open clusters using dynamical models



Jasmine Anderson-Baldwin
PhD Candidate
Swinburne University of Technology
Melbourne, Australia

Input parameters

e.g., metallicity, IMF, binary fraction, stellar density

NBODY6++GPU

Direct *N*-body force calculations, SSE/BSE for stellar/binary evolution

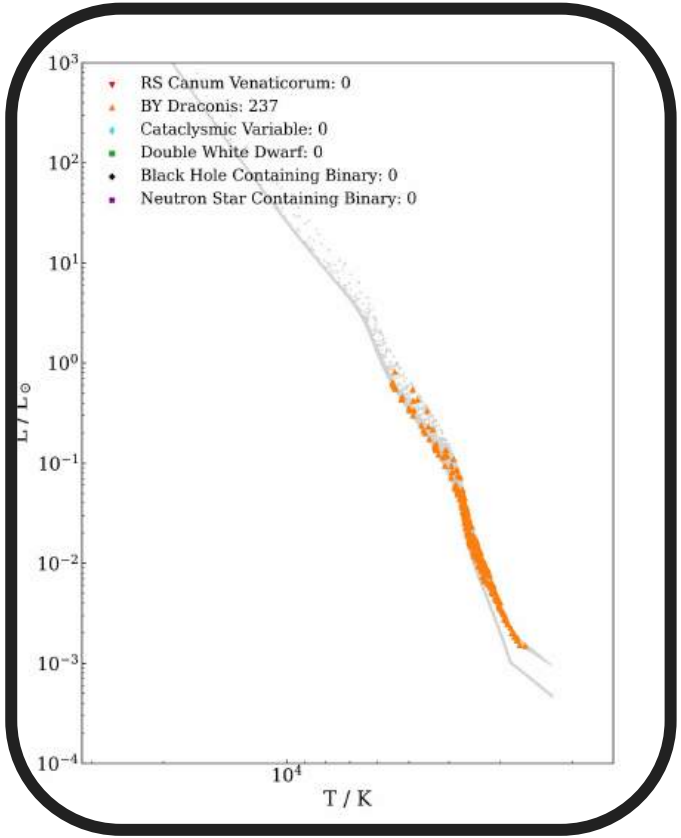
Aarseth 1999: NBODY1-6
Wang+ 2015: NBODY6++GPU





Investigating transient populations in open clusters using dynamical models

Jasmine Anderson-Baldwin
PhD Candidate
Swinburne University of Technology
Melbourne, Australia

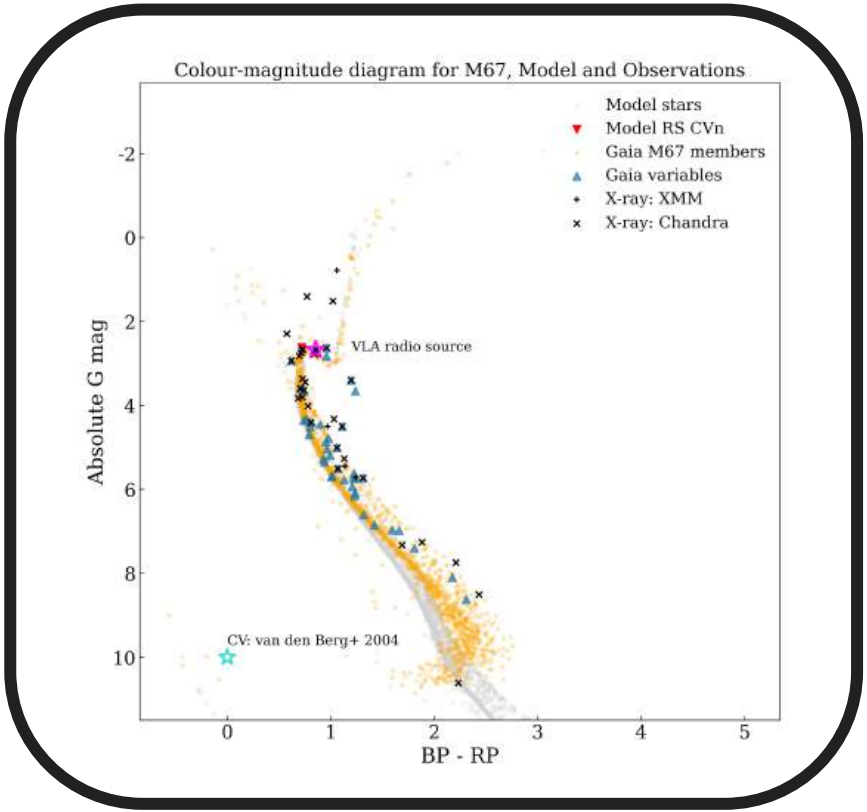


- Deep photometry – faint cluster members / faraway clusters
- Millions of transient detections



Investigating transient populations in open clusters using dynamical models

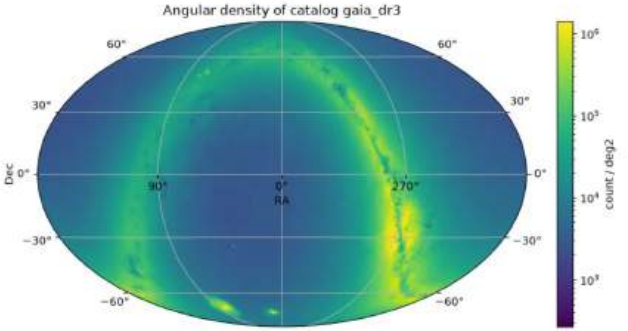
Jasmine Anderson-Baldwin
PhD Candidate
Swinburne University of Technology
Melbourne, Australia



- Deep photometry – faint cluster members / faraway clusters
- Millions of transient detections

SMWLV in the community







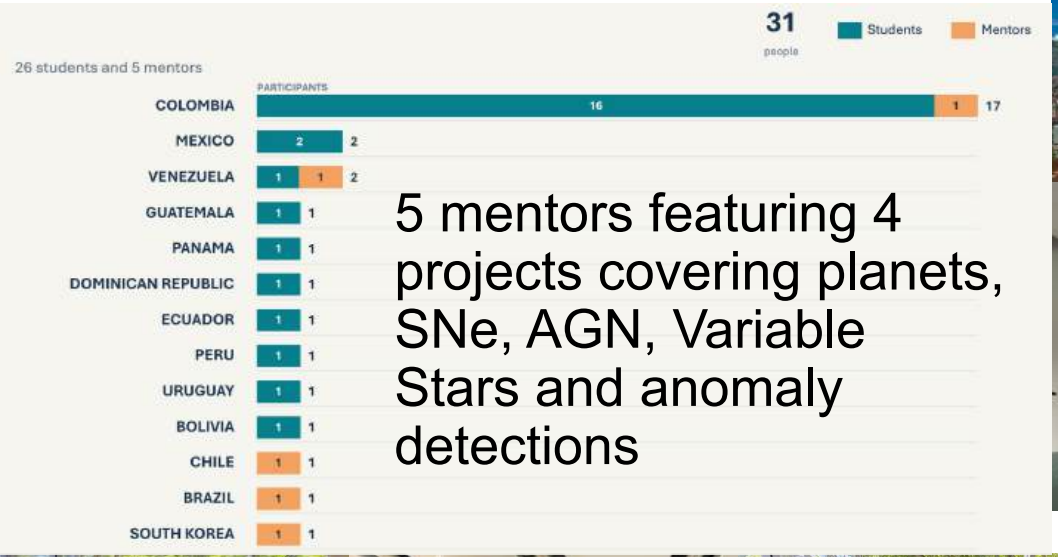
RECA
Red Estudiantes Colombianos Astronomia



Open Tools, Open Sky (Colombia October 2026, Universidad de Antioquia)

LSST Discovery Alliance

Schmidt Sciences



5 mentors featuring 4 projects covering planets, SNe, AGN, Variable Stars and anomaly detections













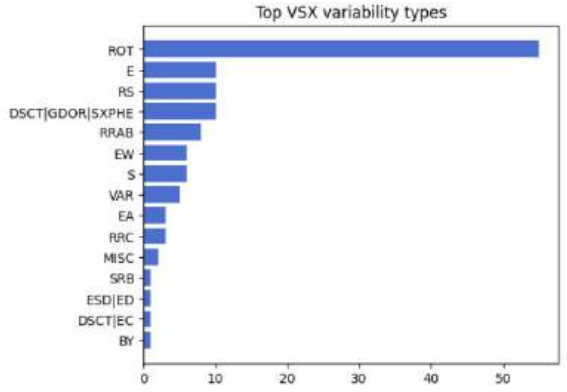


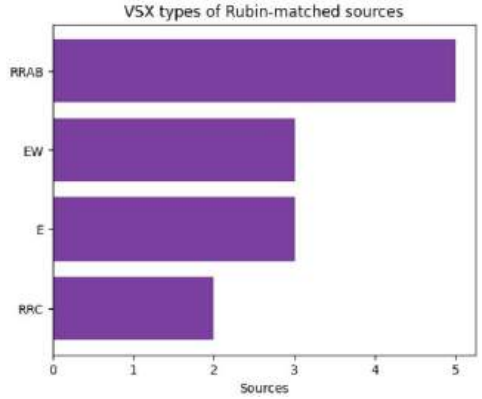


Some results from Open Tools Open Sky Variable Stars group

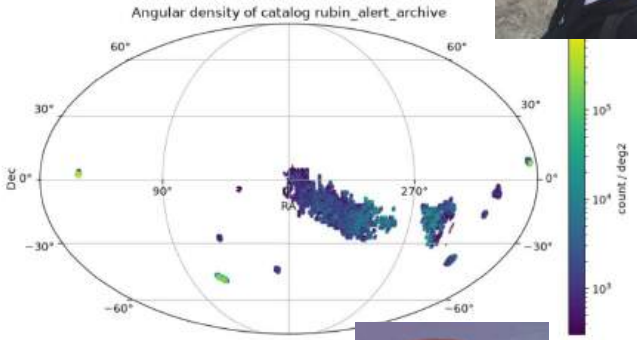
Daniel Rodríguez (Venezuela)

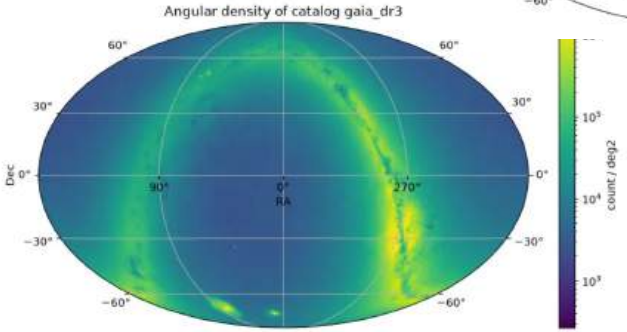


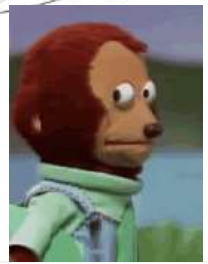


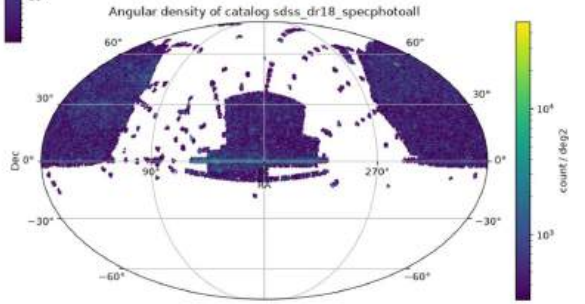


Object with largest history detection: 12…not enough to estimate distance (?)





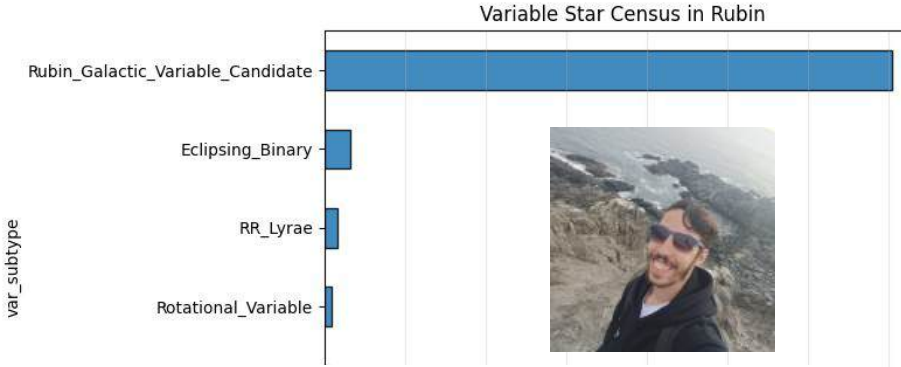


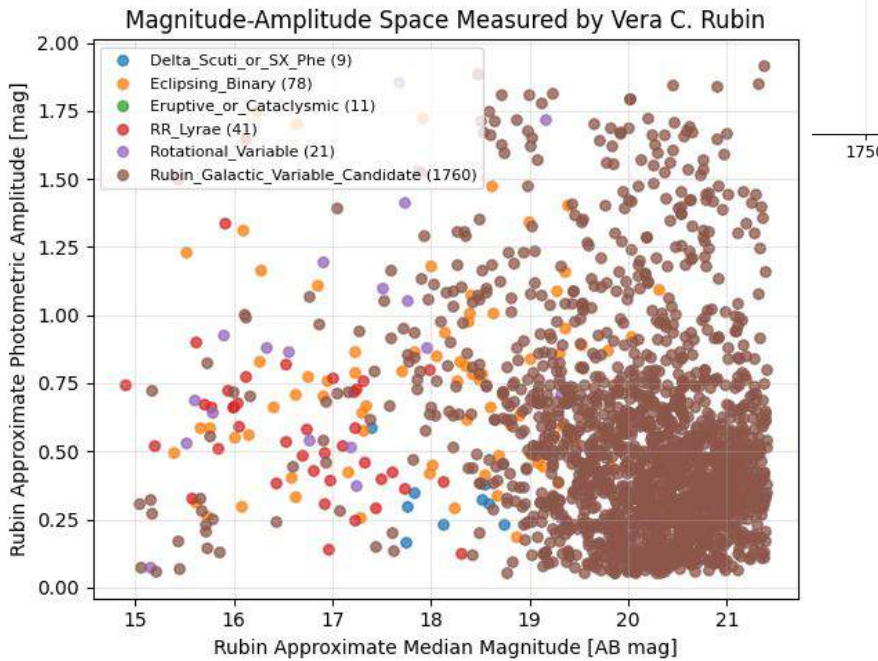


The LINCC LSDB framework. Building a super sample

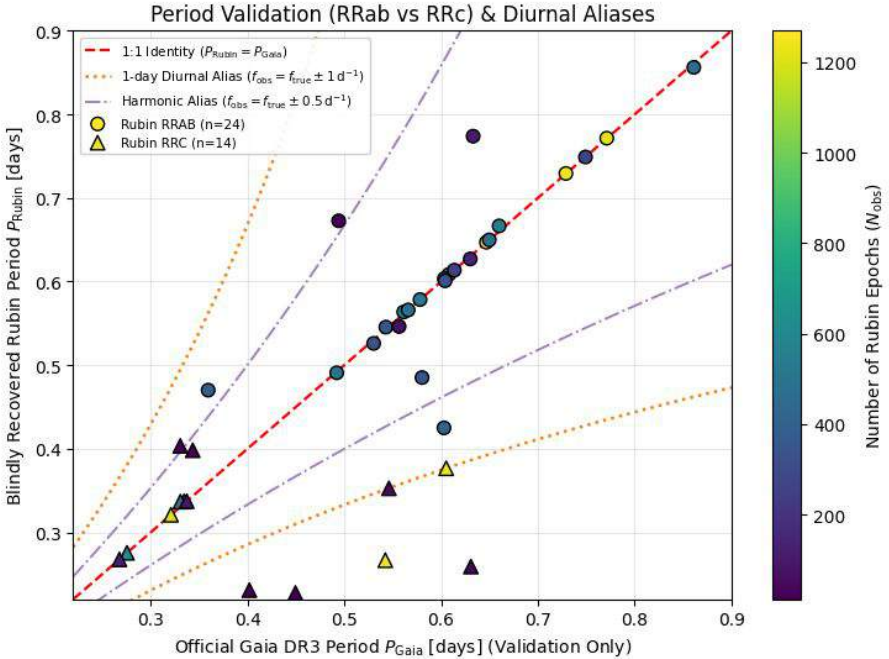
Crossmatch Vera Rubin with Gaia DDR3

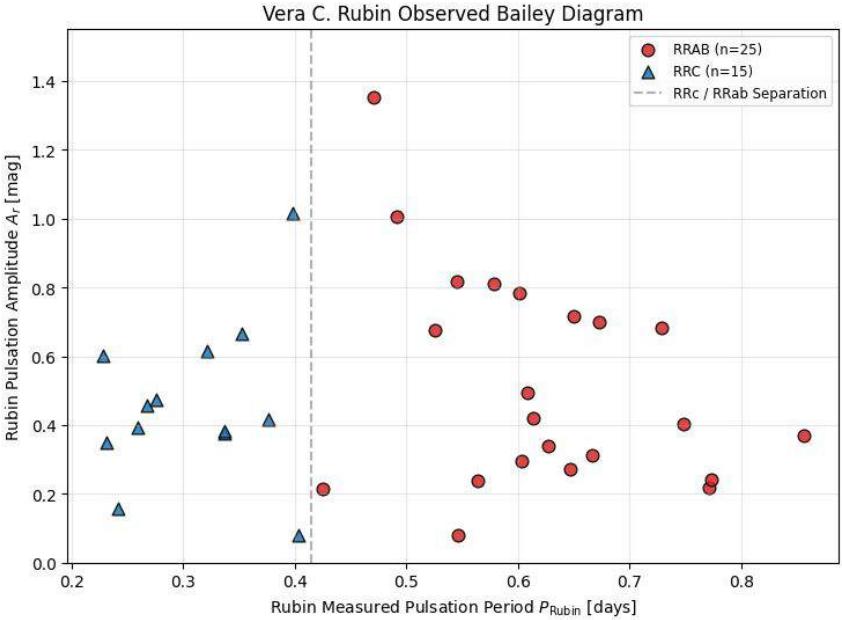
Physical / Statistical Parameter	Threshold / Condition	Astrophysical Objective
Clean Detections	> 10 epochs	Ensure sufficient temporal points
Multiband Coverage	> 2 Rubin filters	Filter out single-band instrumental anomalies
Temporal Baseline	>3.0 days	Capture real long-term astrophysical variability
Reliability	> 0.5	Filter out false positives (bogus DIA alerts)
Median Flux	>10^4\nJy	Avoid extreme photometric noise in faint sources





Period Determination





Period Determination Summary

- **Search Grid:** Evaluated 12,000 test frequencies covering the physical range $P \in [0.22, 0.90]\text{ d}$.
- **Multiband Periodogram:** Simultaneous multi-harmonic fits (LombScargleMultiband) across Rubin filters (u, g, r, i, z, y) to capture light curve asymmetry.



Time series hackathon featuring Rubin alerts (México, August 2026, UNAM)

Hybrid hackathon at Instituto de Astronomía in UNAM (México) using PIG infrastructure

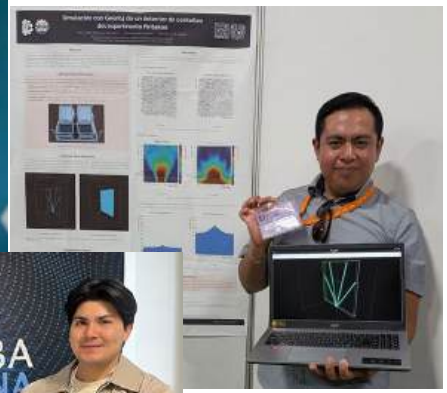
Three phases allowing participation from general public: 25 participants.

First phase using OGLE data, second phase Gaia data and third phase Rubin.

Next edition will be in 2027.











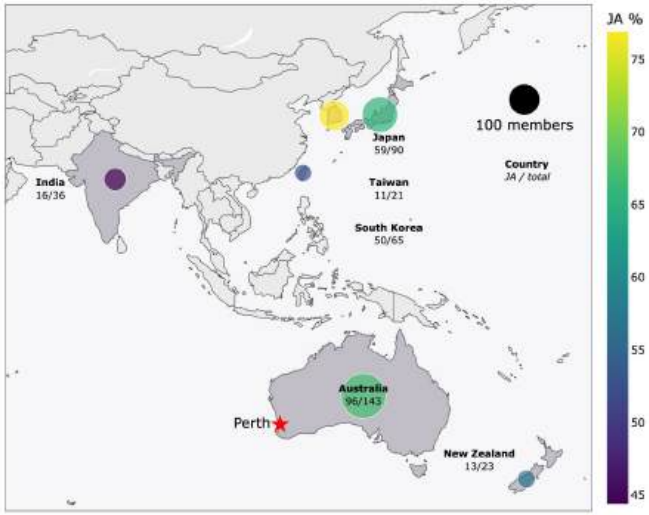
Catalysing Rubin Science in the Asia-Pacific

Expression of Interest

LSST Discovery Alliance

Schmidt Sciences

Topic Areas | About You | Registration | Meeting Details | FAQ | Organisers | Code of Conduct | Similar Events | Supp



Catalysing Rubin Science in the Asia-Pacific

1–5 February, 2027 in Perth, Australia

A hands-on workshop connecting early-career researchers and PIs across Asia-Pacific time zones with the Rubin Observatory LSST community. In Perth, small international teams will work with Rubin's Data Products and Alerts to produce publications and open-source software.

Expression of Interest

Applications due 22 September 2026 · notifications by early October 2026

Topic Areas

Each topic area will have one Asia-Pacific and one international facilitator, with five project teams of up to six participants. These are our anticipated topic areas, and we welcome Rubin related project proposals from other disciplines as well.

Catalysing Rubin Science in the Asia-Pacific

Expression of Interest

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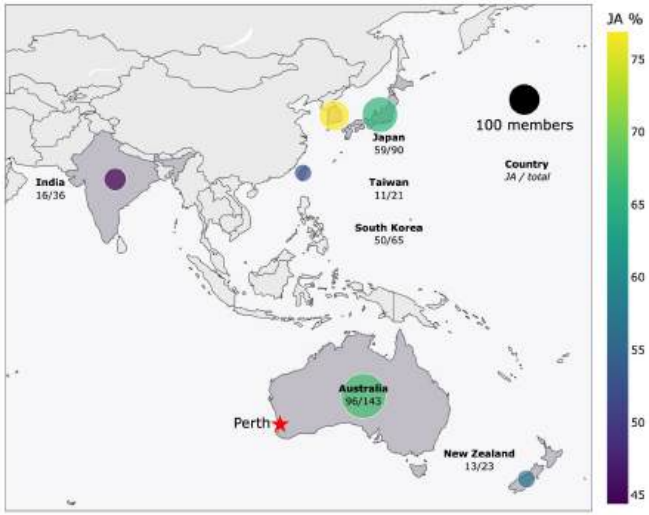
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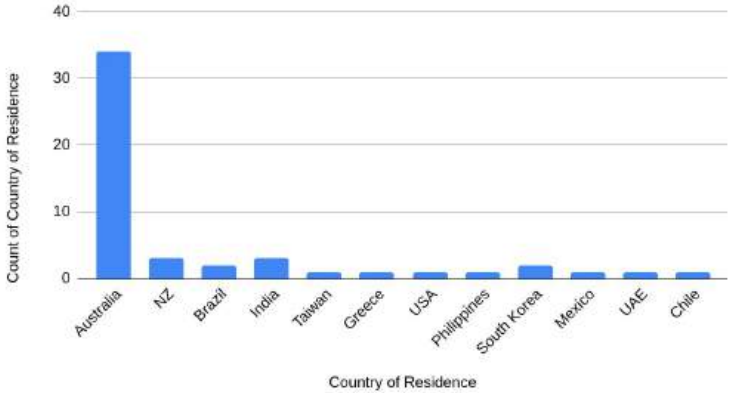
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SMWLV is now partnering with RECA

Red Estudiantes Colombianos Astronomia

Expanding research horizons for undergraduate students in Colombia - talk to Andrés Plazas Malagón for more! plazasmalagon@gmail.com

Students join a 10 week research-intensive remote internship, and learn how to code, analyze real data and communicate science.

SMWLV is excited to partner with RECA to help connect mentors to students!

https://www.astroreca.org/



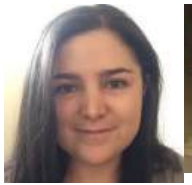


This year, Yasna Ordenes-Briceño participated as mentor.
Student: Andrés López-Echeverri (BSc, University Antioquia, Medellín).
Project: "Exploration of the environment of galaxy NGC 1398 with a multi-wavelength approach"
López-Echeverri et al. *in prep.*

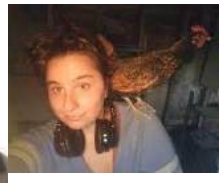
SMWLV Lunch

If you are a SMWLV member, or interested in knowing more about SMWLV, let's get lunch tomorrow (Wednesday)! We will gather near the entrance, please look for me or Bolivia :)

Wednesday, November 4th, 2026			
Session chairs: Julia Gschwend & Thaisa Storchi Bergmann			
09:00 – 09:30	Rubin Plenary	**LSST-DA Chief Scientist**	**Jeno Sokoloski**
09:30 – 09:45	Contributed talk	Machine Learning Identification of Classical Be Stars in the Era of Large Time-Domain Surveys	Clara Amorim Navarro
09:45 – 10:00	Contributed talk	Eruptive Young Star in Rubin Era	Zhen Guo
10:00 – 10:30	Poster Flash Talks	Poster flash talks	
		Conference Picture	
10:30 – 11:00	Break		Coffee break
11:00 – 11:30	SC Keynote	**Transient & Variable Stars SC**	**Clécio de Bom**
11:30 – 11:45	Contributed talk	AEON: the NOIRLab follow-up ecosystem for Time-Domain Science	Cesar Briceño
11:45 – 12:00	Contributed talk	SCORPIO – a new facility instrument for the Gemini South telescope geared for rapid response	Swayamtrupta Panda
12:00 – 12:15	Contributed talk	From LSST Alerts to Follow-up: Observational Capabilities of the LNA Facilities	Felipe Navarete
12:15 – 12:30	Contributed talk	CASLEO follow-up of microlensing events: prospects for Rubin LSST	Karen Nowogrodzki
12:30 – 14:00	Break		Lunch



Bolivia



Me (but without the chicken)

We will meet during this break by the entrance.

Synthesis & Takeaways

Membership application QR code

- We very gladly welcome new members! Join us!!
- Lots of activity and interest, good international participation from early career researchers.
- Able to make lots of cross connections between SWGs and other SCs despite covering quite a broad range of topics.

Local Volume

Galactic Structure and ISM



Star Clusters

Variable Stars

Solar Neighborhood