SSSC Update

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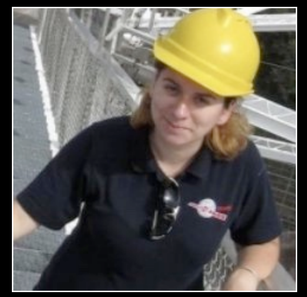
Legacy Survey of Space and Time
Solar System Science Collaboration

Image Credit: Rubin Observatory/NSF/AURA/W. O'Mullane

LSST Solar System Science Collaboration (SSSC)

Colin Orion Chander & Meg Schwamb
SSSC Co-Chairs

Darin Ragozzine & Gal Sarid
Publication Coordinators



Agata Rożek
Early Career
Representative

Laura Inno
Cross Science Collaborations
EDI Committee Member

Active objects Working Group (Lead: Cyrielle Opitom)

Community software/infrastructure development Working Group (Lead: Henry Hsieh)

Inner Solar System Working Group (Lead: Siegfried Eggl)

NEOs (Near Earth Objects) and Interstellar Objects Working Group (Lead: Sarah Greenstreet)

Outer Solar System Working Group (Lead: Michele Bannister)

DP0.3	Solar System PPDB Simulation		
Serving the Solar System Science Collaboration's simulated Prompt Product Database to enable moving object analysis development in the RSP.			
Milestone ID:	L1-RO-0180		
Data Products Available Prior to the Data Release:	None		
Data Release:	Jun 2023 - Sep 2023		
Data Product		**Date**	**Notes**
DRP Processed Visit Images and Visit Catalogs	☐		
DRP Coadded Images	☐		
DRP Object and ForcedSource Catalogs	☐		
DRP Difference Images and DIASources	☐		
DRP ForcedSource Catalogs including DIA outputs	☐		
PP Processed Visit Images	☐		
PP Difference Images	☐		
PP Catalogs (DIASources, DIAObjects, DIAForcedSources)	☐		
PP SSP Catalogs	☑	Data Release	*Exact data products TBD, but focus is squarely on serving familiar mock catalogs but in Rubin format from the Rubin Science Platform.*
DRP SSP Catalogs	☐		

https://rtn-011.lsst.io/

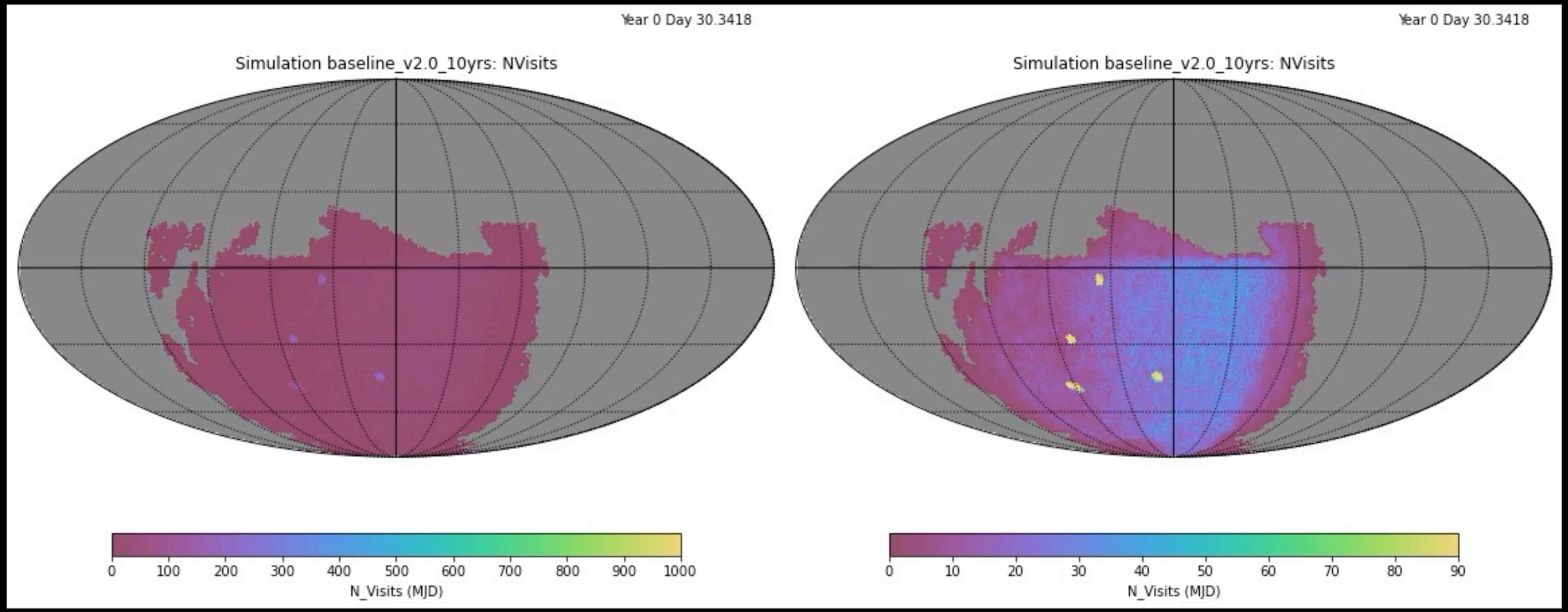
Everything you want to know about LSST Survey Strategy Options and impacts to Solar System Science

Tuning the Legacy Survey of Space and Time (LSST) Observing Strategy for Solar System Science

Megan E. Schwamb,[1] R. Lynne Jones,[2,3] Peter Yoachim,[4] Kathryn Volk,[5,6] Rosemary C. Dorsey,[7]
Cyrielle Opitom,[8] Sarah Greenstreet,[9] Tim Lister,[10] Colin Snodgrass,[8] Bryce T. Bolin,[11,12,13,*]
Laura Inno,[14,15] Michele T. Bannister,[7] Siegfried Eggl,[16,17,18,19] Michael Solontoi,[20]
Michael S. P. Kelley,[21] Mario Jurić,[9] Hsing Wen Lin (林省文),[22] Darin Ragozzine,[23]
Pedro H. Bernardinelli,[9] Steven R. Chesley,[24] Tansu Daylan,[25,26] Josef Ďurech,[27]
Wesley C. Fraser,[28] Mikael Granvik,[29,30] Matthew M. Knight,[31] Carey M. Lisse,[32]
Renu Malhotra,[5] William J. Oldroyd,[33] Audrey Thirouin,[34] and Quanzhi Ye (叶泉志),[21,35]

Schwamb et al (in press ApJS Rubin Cadence Special Focus Issue)

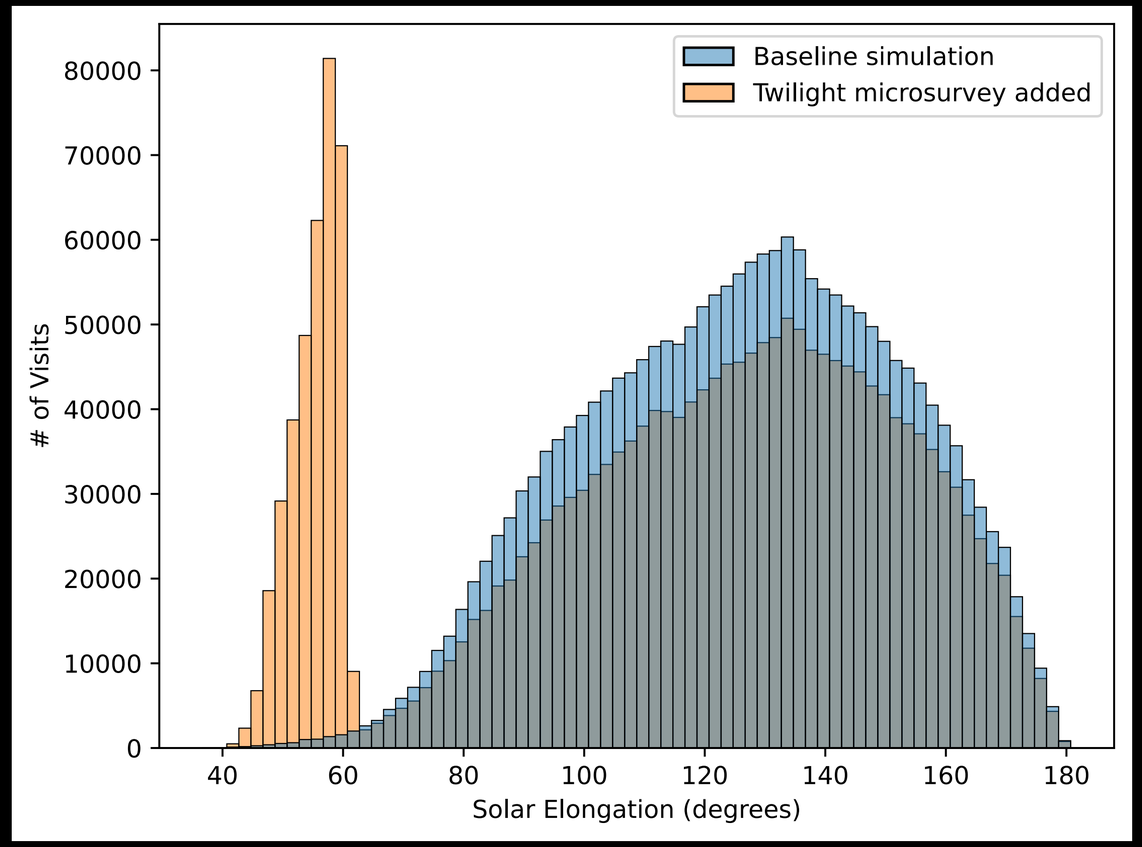
Cadence Feedback



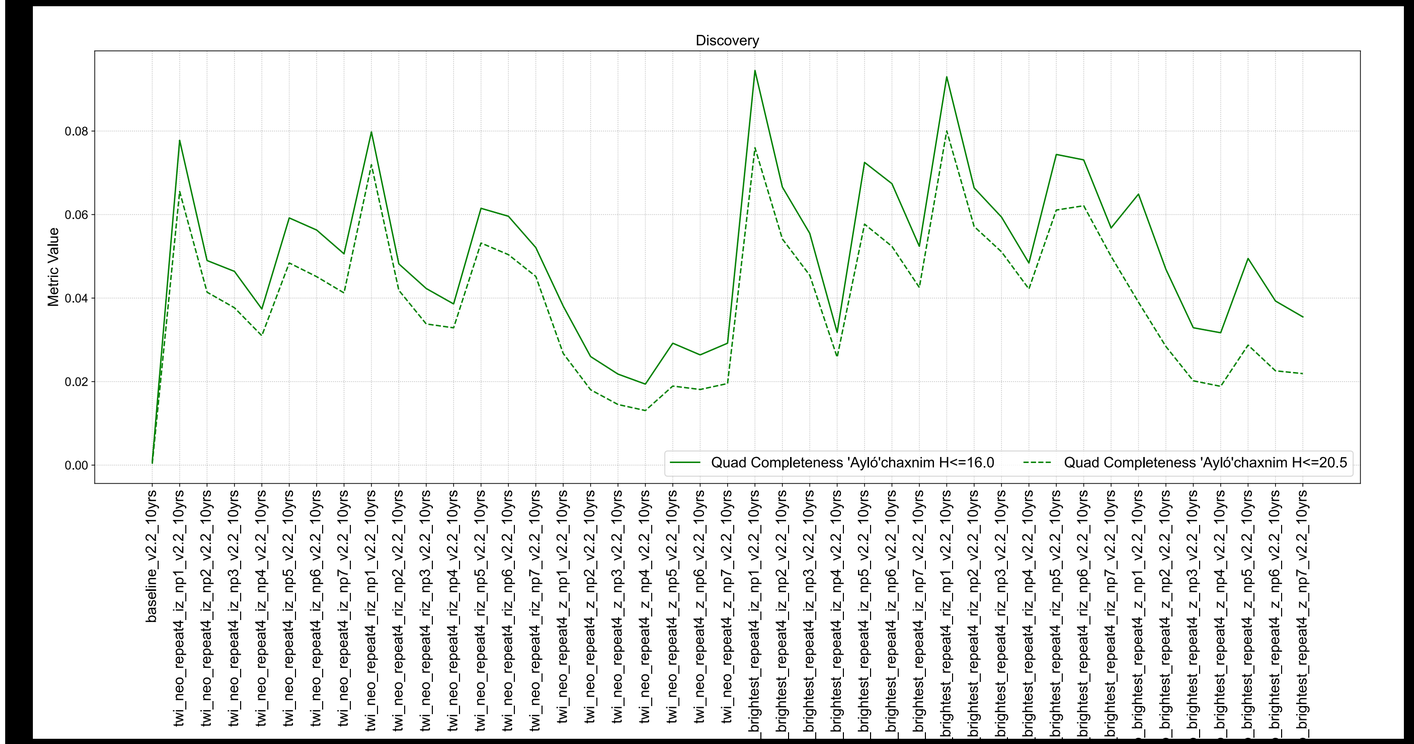
Schwamb et al. (2023)

Kat Volk started as the SCOC SSSC Liaison in January

Preparing the SSSC for the Start of Operations and Early Science



Schwamb et al. (2023)



Schwamb et al. (2023)

Co-Chair and Working Group-Lead Election Up-Coming

Nominations due later in June/early July. Voting later in the Summer

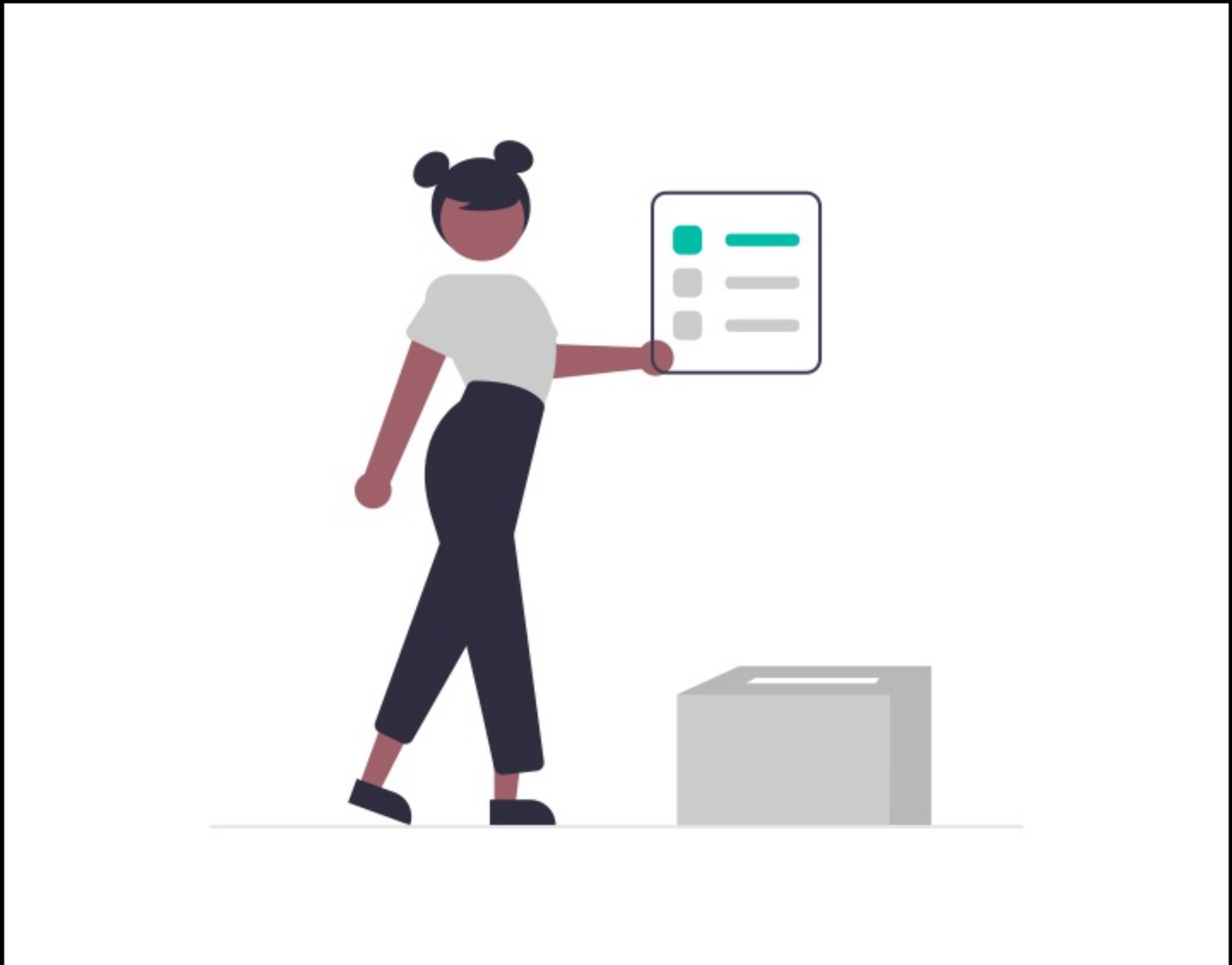


Image credit: https://undraw.co/

We’re in the home stretch of construction

Slide Credit: Mario Jurić

Developed an external expert membership class for a small number of people without data rights who could provide some unique contributions to the SSSC (subject to adoption by the collaboration). Currently being voted on by the SSSC

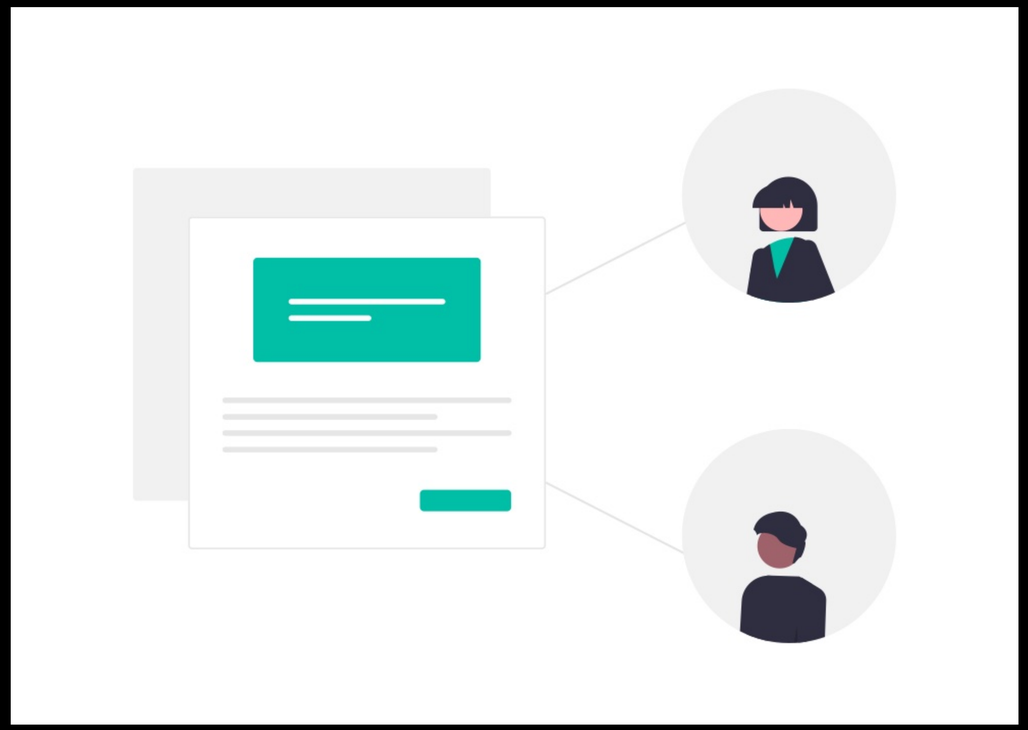


Image credit: https://undraw.co/

International In-Kind Contributions

Currently spinning up:

- Directable software effort from Italy and Canada
- UK is developing Solar System alert analysis software packaged for the UK Alert Stream Broker Lasair (which also is expected to work on the Rubin Science Platform)
- Hungary is providing the developer pool time (0.75 FTE) to develop a Solar System forced photometry tool and enhancing the sbpy package

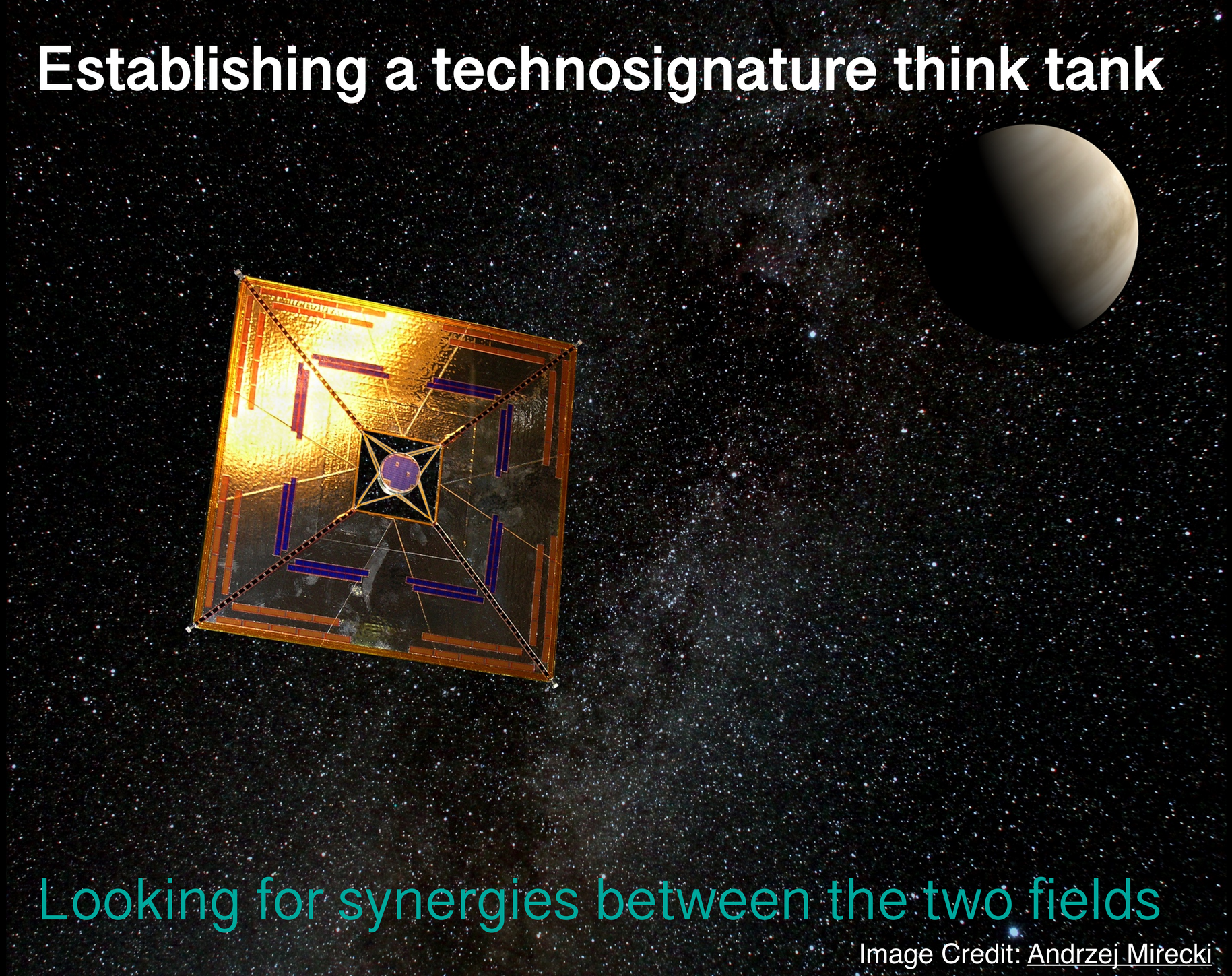
2 Information Sessions in May/June

Impactors and LSST/Rubin Observatory

Image Credit: Peter Carril/ESA

- Impactor may be seen further out (more warning) because of the increase limiting magnitude and sky coverage of Rubin Observatory
- Detections report to the MPC will be 5-sigma, but there will be the ability to search the image data for 3-sigma detections on the Rubin Science Platform/IDACs
- Rubin Observatory Cadence Optimization Committee and the Operations team are considering a small TOO (Target of Opportunity Program). It may be possible to interrupt LSST observing and try to image an object in multiple filters before impact

Establishing a technosignature think tank



Looking for synergies between the two fields

Image Credit: Andrzej Mirecki

Facilitating Conversations and Connecting SSSC Members during the last 2 years of time to prepare before the start of LSST data

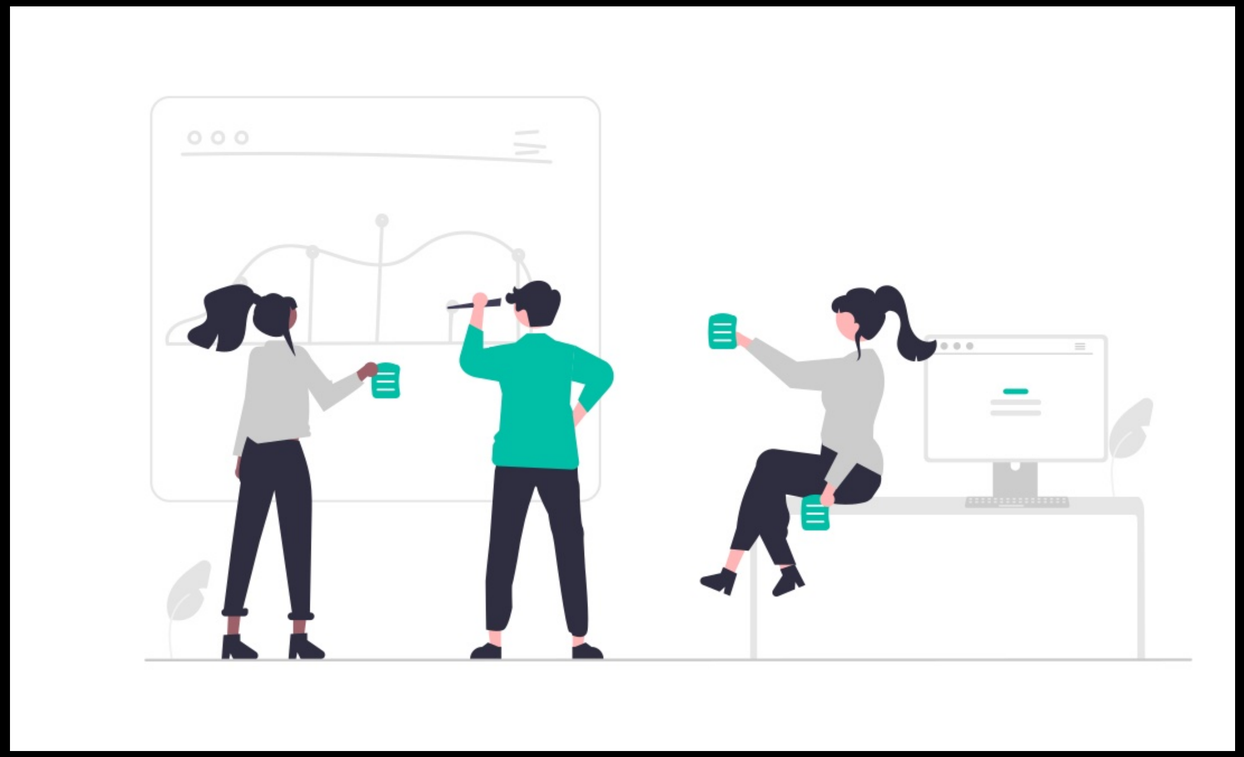


Image credit: https://undraw.co/

Preparing the SSSC for the Start of Operations and Early Science

- Hold a virtual Sprint later in the year? September?
- Have Sprint in 2024 be virtual online and focus in-person of gathering in 2025?
- Planning a Sprint/possibly extended data boot camp in Europe before the joint EPSC-DPS in Finland in September 2025
- Plan DP2 Solar System boot camp when the data release is scheduled.

How do we pay for all of this?

https://rtn-011.lsst.io/

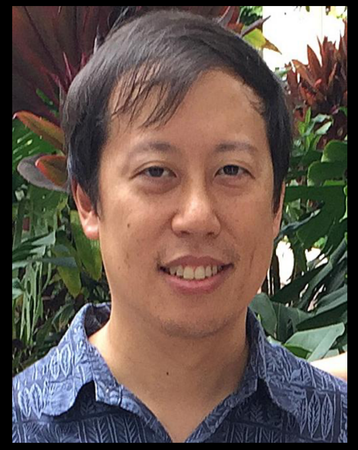
Active Objects Working Group

- Feedback for cadence discussions
- Discussions about activity detection
- Discussions on how to report activity and activity changes
- Discussions on follow-up of active objects
- Currently 48 members, sign up if you want to join

Contact
Cyrielle Opitom
(copi@roe.ac.uk)

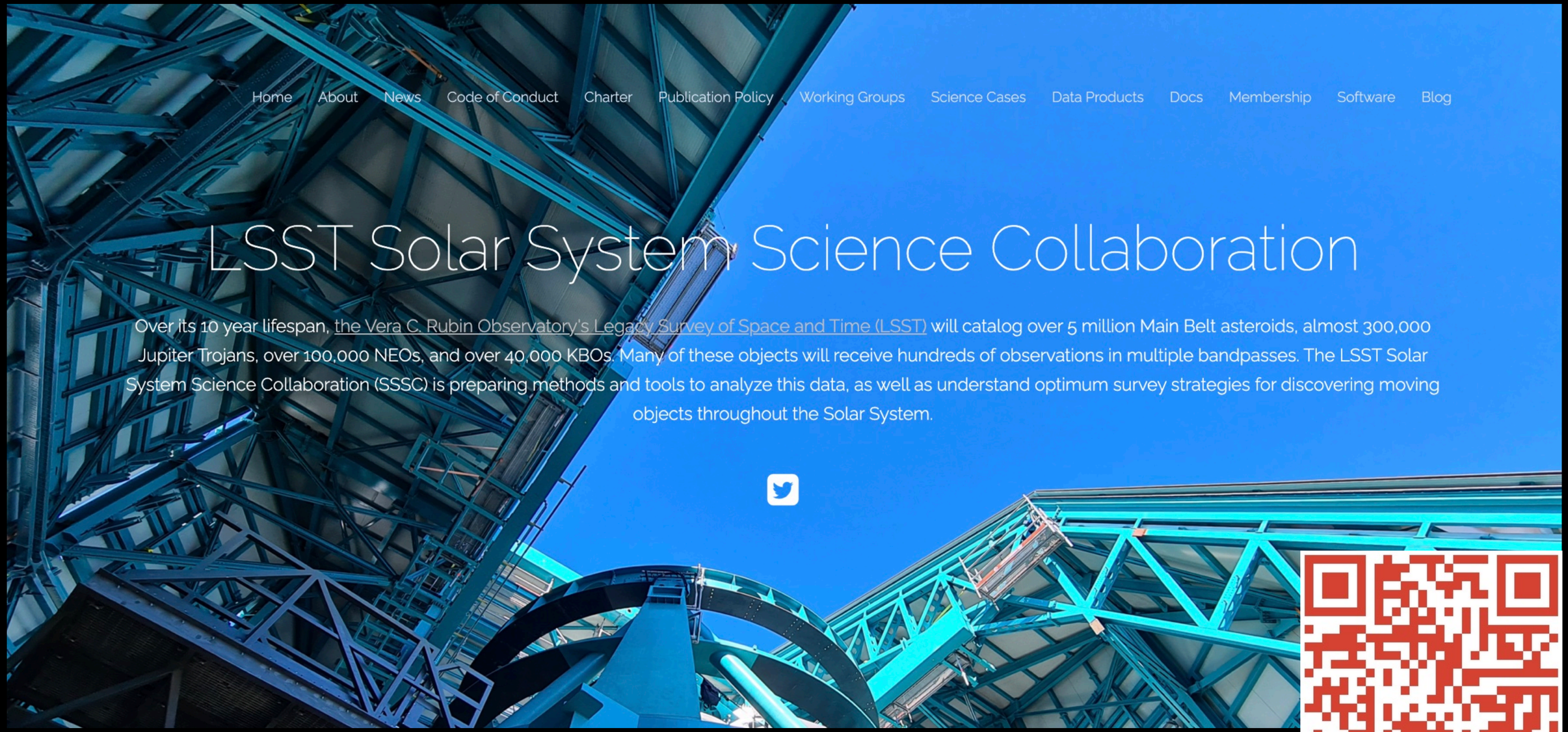
Community Software & Infrastructure Development Working Group

Contact: Henry Hsieh
(hhsieh@psi.edu)



- Aim is to coordinate software development efforts within the SSSC
- Tag-up meetings include discussions about in-kind software development contributions, software development efforts by WG members, and software development needs
- Includes a Derived Photometric Data Products sub-working group (led by Jamie Robinson) to look into tools for simultaneously solving for lightcurve properties, colors, and phase functions from sparse photometric data
- Summary of software working group activities (including past meeting notes and recordings): https://shorturl.at/cAD24

More details can be found on the SSSC's webpage



www.lsstsssc.org