

LSST:UK Newsletter 34 (June 2023)

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Introduction

The Rubin Education and Public Outreach (EPO) programme transitioned from Construction to Operations a few months ago, with a [big splash](#), including the launch of a new, public-facing website (rubinobservatory.org); for the time being, at least, the links in the “For Scientists” section of the new site point back to the old lsst.org site, so that will remain the more useful of the two websites for us for the moment.

An outline programme has been published for the [2023 Project and Community Workshop \(PCW\)](#). The meeting has reached its in-person capacity, but there is a waiting list accessible through the [in-person registration page](#), while [virtual registration](#) remains open (although not all sessions will support remote attendance).

Videos of the sessions from the DPO Virtual Summer School are now [available online](#).

In October, the IAC in La Palma is hosting an IAU Symposium entitled *Astronomy and Satellite Constellations: Pathways Forward*. This is the latest in a series of workshops - now coordinated by the *IAU Centre for the Protection of the Dark and Quiet Sky from Satellite Constellation Interference (CPS)* - providing a forum for constructive interaction between astronomers, satellite operators and other stakeholders addressing the impact of satellite constellations on astronomy. The features of the LSST design that make it such a powerful survey also make it particularly vulnerable amongst optical astronomy projects to the impact of satellite constellations, so members of the Rubin community have been prominent in this initiative since its inception. Whilst it is the pictures of streaks from newly-launched Starlink satellites across optical images that have been picked up by the media, the impact on radio astronomy is just as bad, if not worse in the case of the SKA, so the CPS is co-hosted by NOIRLab and the SKA Organisation, and this conference will, doubtless, feature on-going research from both regions of the spectrum. [Registration](#) for the workshop is now open, and includes a 40 Euro option for remote attendance.

A number of the staff working within the LSST:UK Science Centre (LUSC) programme at Edinburgh are from [EPCC](#), rather than the [Institute for Astronomy](#), and they are preparing a series of articles for the EPCC website summarising their work. In the first of these, Dominic Sloan-Murphy describes his work with Tom Wilson and Tim Naylor to [parallelise the Macauff catalogue cross-matching software](#), providing a slightly more technical account of that collaboration than was presented in the news item that the three of them wrote for the [December/January Newsletter](#).

Those with ideas for future newsletter items should contact the LSST:UK Project Managers (@George Beckett and @Terry Sloan lusc_pm@mlist.is.ed.ac.uk), while everyone is encouraged to subscribe to the [Rubin Observatory Digest](#) for more general news from the US observatory team.

@Bob Mann

Executive Group elections

Following recent elections, we are delighted to welcome two new members - Sarah Casewell and Matt Nicholl - to the Exec Group.

Sarah is an STFC Ernest Rutherford Fellow and lecturer at the University of Leicester, where she is also co-chair of the Women's Staff Forum. She is an observational astronomer working on brown dwarfs, white dwarfs, exoplanets and low mass binary systems. She is a member of the Next Generation Transit Survey (NGTS) consortium and an ESA community scientist for the Ariel mission. Sarah has been an LSST:UK point of contact for the solar neighbourhood and is now the point of contact for variable stars.



Sarah Casewell

Matt is a Reader in Astrophysics at Queen's University Belfast, with previous experience at Birmingham, Edinburgh and Harvard. He is interested in the diversity of astrophysical transients and in particular how compact objects (neutron stars and black holes) provide the engines behind some of the rarest and most energetic events in the Universe, such as tidal disruption events, superluminous supernovae, and gravitational wave sources. He currently leads a project to harness the power of Rubin alerts and must-messenger searches, using machine learning transient classification and spectroscopic/multi-wavelength follow-up.



Matt Nicholl

Matt and Sarah were elected by the LSST:UK Consortium Board to replace @Catherine Heymans and @Aprajita Verma who had both stood down at the end of their Exec Group terms. We thank all those who stood in these elections and, especially, thank Catherine and Aprajita for the valuable input that they have provided during the past three years. Aprajita has kindly agreed to continue attending Exec Group meetings in a new *ex officio* role associated with her position as leader of the Rubin In-Kind Program Coordination team. Matt and Sarah join @Cosimo Inserra, @Richard McMahon and @Kathy Romer as the five elected members of the Exec. Exec Group meetings are also

attended by @Mike Watson (Consortium Board Chair), @Graham Smith (Commissioning Coordinator), @Stephen Smartt (Project Scientist), @George Beckett and @Terry Sloan (Project Managers), plus myself, as Project Leader and Exec Group Chair.

@Bob Mann

Vacancies on the Rubin Observatory Science Advisory Committee (SAC)

There is a call out for (self-)nominations for 3-6 new members of the Rubin Science Advisory Committee (SAC). Its website explains that the SAC “*provides a formal, and two-way, connection to the external science community served by the Rubin Observatory.*

Comprised of scientists familiar with but external to the Rubin Project, the SAC advises the Rubin Construction and Operations Directors on both policy questions and technical topics of interest to the Project and the science community”. As explained in its [formal charge](#), the SAC is intended to reflect the diversity of the LSST community across a range of dimensions, including scientific expertise, nationality, career stage, gender, and racial and ethnic identity, although SAC members serve in a personal capacity, rather than representing any particular section of the community; that said, the call notes that “[n]ominations from the UK, and French communities (operational partners of the Rubin Observatory) are especially encouraged”. SAC meetings - of which there are 2-8 per year, depending on the range of advice sought from the SAC - are generally remote, but there is one in-person meeting per year, usually at a major Rubin event, such as the PCW - and the total time commitment associated with membership is estimated at ~16 hours per year. SAC members serve for two-year terms, which may be renewed once.

Stephen Smartt served on the SAC and his term ends this summer and he advised “I would encourage members of the UK community to consider either self-nominating or approaching one of the LSST:UK Exec to help with a nomination. The SAC gets regular updates and presentations from the project on an interesting wide range of issues and the project does act on the committees views and recommendations. You can help link the project to its user base and use your scientific expertise to help shape policy direction and technical priorities. At this stage of the project, as we approach commissioning and the period of operational readiness review, it's an exciting time to work within a major international project and to see how it interacts with scientists around the world. I enjoyed the open and welcoming atmosphere of the SAC and the value the project placed on the committees views. There are challenges, and becoming familiar with the complexity of the hardware and software issues will be the most important in the next 2 years.”

Nominations are to be made via a [webform](#), and self-nominations are encouraged. Consideration of nominations will begin on **July 31st**, but the form will remain open after that date.

@Bob Mann , @Meg Schwamb and @Stephen Smartt

LSST:UK session at NAM2023

A reminder that we have three sessions at NAM2023, with a schedule as follows:

Date	Time	Speaker	Title
Thursday, July 6	16.00	Bob Mann (Edinburgh)	UK involvement in the LSST
	16.12	Bob Blum (Rubin)	Rubin Observatory update
	16.38	Christina Williams (NOIRLab)	Community Science update
	16.55	Ashley Villar (Harvard)	LSST Science Collaborations
	17.12	George Beckett (Edinburgh)	Delivering a UK Independent Data Access Centre for LSST
Friday, July 7	09.00	James Mullaney (Sheffield)	LSST Data Release Processing: what, when, where and the UK's involvement
	09.12	Manda Banerji (Southampton)	The HSC-VISTA fusion dataset and prospects for LSST+VISTA extragalactic science
	09.24	Tom Wilson (Exeter)	Enabling early Rubin science with robust cross-matches in the crowded LSST sky
	09.36	Chris Frohmaier (Southampton)	LSST and the Time-Domain Extragalactic Survey (TIDES)
	09.48	Aaron Watkins (Herts)	Modifying the HSC pipeline sky-subtraction algorithms for low-surface-brightness science with LSST
	10.00	Sugata Kaviraj (Herts)	Dwarf galaxies in deep-wide surveys like LSST: a new frontier in the study of galaxy evolution
	10.12	Madison Walder (Surrey)	Probing the dark matter haloes of external galaxies by modelling stellar streams
	14.15	Mike Walmsley (Manchester)	Galaxy Zoo for LSST
	14.27	Adam McMaster (Open U)	Black hole hunters: a microlensing search for quiescent black holes
	14.39	Francesco Petri (Imperial)	Inferring cosmology using Lyman-break galaxies from Rubin
	14.51	Naomi Robertson (Edinburgh)	The interplay between different analysis choices for LSST-Y1 cosmic shear
	15.03	Isabelle Ye (Manchester)	Detecting the Doppler magnification dipole from LSST images
	15.17	Sebastian von Hausegger (Oxford)	Testing the cosmological principle with Rubin
	15.29	Suhail Dhawan (Cambridge)	Strongly lensed supernovae: discovery to cosmology in the LSST era

There will also be one poster associated with this session. It is entitled *Tensorised Analytic Marginalisation over Tomographic Redshift Distribution for Accurate and Efficient Cosmic Inference* and will be presented by Yunhao Zhang (Edinburgh).

@Bob Mann and @Stephen Smartt

Recent LSST:UK Science Centre outputs

The LSST:UK Science Centre has recently produced the following technical reports.

Title	Author(s)	Description
D2.5.3 Collection of final reports for mini-projects w/ DEV activities	George Beckett and Mike Read	A unique element of the LSST:UK programme, and a particular advantage for UK astronomy, is the Development (DEV) work package, which enhances and extends the astronomy potential of the

baseline Rubin Observatory software, services, and data products, for priority astronomy topics within the UK.

Some activities in the DEV work package need to interface with the LSST:UK Data Access Centre (DAC), so their outputs can be made available to science users during operations. A key activity in WP2.5 has been to engage early with the relevant DEV teams to develop, test and document how the DEV products will interact with the UK DAC and be supported by the DAC team during Operations. The output of these mini projects is a set of DAC-DEV interface-definition reports which define the interfaces between the DAC and each set of DEV products in sufficient detail to ensure the products integrate seamlessly into an astronomer's workflow, and to document where the responsibility for different aspects of the interface will lie (that is, with the DAC team or the DEV team). This work helps promote the impact of LSST:UK activities and contributes to the fulfilment of the science ambitions of the UK astronomy community.

The DAC-DEV interactions are built around four key objectives:

1. Familiarise the relevant DEV teams with the capabilities and functionalities of the UK DAC platform.
2. Identify key DAC interfaces with which DEV teams need to work, to integrate their outputs into the UK DAC.
3. Secure DAC resources and capabilities to host the DEV teams' outputs.
4. Test DAC-DEV integration, based on precursor data sets or performing other representative tests, to validate the selected approach and interfaces.

From the Phase B DEV work package, two activities have been identified whose products (software and/ or datasets) are to be integrated into the LSST:UK DAC:

- WP3.5: LSST and Near-IR Data Fusion
- WP3.11: Crossmatching and Astrometry at LSST Depths

At the time of writing, these DAC-DEV mini-projects are close to complete, and the outcome of the work is documented in two technical reports introduced in this deliverable.

@Terry Sloan

Forthcoming meetings of interest

There are a number of meetings coming up this Summer, which are likely to be interesting to those involved in LSST:UK.

Preparations for both the [Rubin Project and Community Workshop 2023](#) (Tucson, USA, 7th-11th August 2023) and [LSST@Europe 5](#) (Poreč, Croatia, 25th–29th September 2023) are progressing at pace. The latest information on the programmes and options to contribute is available via the respective websites.

Other meetings of potential interest for the coming months include:

- 3rd-7th July: [The National Astronomy Meeting 2023](#), held in Cardiff, with a three-part session on “UK involvement in the Vera C. Rubin Observatory: Legacy Survey of Space and Time”
- 24th–26th July 2023: [New Era of AGN Science with the Vera C. Rubin LSST](#), held in Charlottesville, Virginia, USA
- 24th–28th July: DESC Collaboration Meeting (SLAC), California, USA
- 24th–28th July: [ZTF Summer School](#), University of Minnesota/ virtual

Members of the Consortium (not in receipt of travel funding through one of the Science Centre grants) may apply for travel support for meetings of this kind via the the LSST:UK Pool Travel Fund. Details are available at [Forthcoming LSST-related Meetings](#) .

Note that the current list of forthcoming meeting is always available on the [Relevant Meetings](#) page. You may also wish to check information held on the LSST organisation website [LSST-organised events](#) and the [LSST Corporation website](#).

@George Beckett

Announcements

If you have significant announcements that are directly relevant to LSST:UK and would like to share the announcement in a future newsletter, please contact the [LSST:UK project managers](#).