

Call for proposals for the Liverpool Telescope

Semester 2012A

The Liverpool Telescope is a 2.0 metre fully robotic telescope sited at Observatorio del Roque de Los Muchachos, La Palma, Canary Islands. The Liverpool Telescope Time Allocation Committee is now accepting proposals for PATT time for observations in Semester 2012A (1st February 2011 to 31st July 2012). **Full details of the telescope, instrumentation and proposal submission are given at:**

<http://telescope.livjm.ac.uk/>

You may also apply for **Reactive Time** at any point as described at the end of this call.

Time available and deadline

The deadline for submission is 30st September 2011.

The total available time for PATT users in 2012A excluding pre-allocated time is around **260 hours**. Time is allocated approximately in ratio 2:1 between Priority A and B. In addition **another 120 hours** will be available as Priority C (backup). Applications are particularly encouraged for poor seeing conditions, which are typically less subscribed.

Instrument availability

A new instrument (IO:O) is available this semester. This optical camera provides a 10x10 arcminute field of view and has ~3 times the u band sensitivity and ~2 times the z band sensitivity of RATCam. Sloan u' g' r' i' z', Bessel B and V, a rest wavelength H α plus 4 redshifted H α filters are available.

In addition a new fast readout camera IO:THOR will be commissioned during the semester. Users wishing to use this camera on a shared-risk basis should contact phase1@astro.livjm.ac.uk well before the deadline in order to discuss feasibility etc.

In addition instruments FRODOSpec RATCam, RINGO2 and RISE remain available. **This is likely to be the last semester that RATCam will be offered.**

- **FRODOSpec** is the multi-purpose **integral-field input spectrograph**. See the telescope website (below) for updated performance information, but the specification allows observations at 380 to 1000 nm in either low (~2400) or high (~5400) resolution mode. The IFU provides a 12 \times 12 lenslet array over a total field of view ~10 arcsec. **Blue arm throughput was improved by a factor 3 during 2010.**
- **RATCam** is an optical CCD camera with a 4.6 \times 4.6 arcmin field of view. The available filters are Sloan u', g', r', i', z', Bessell B and V, and H α . Observations can also be obtained without filters.
- The **RINGO2** polarimeter offers significant improvements on RINGO, with a sensitivity improvement of 2 magnitudes and much simpler data reduction.
- **RISE** is fast-readout camera developed in collaboration QUB. It has a fixed "V+R" filter (similar to that used in RINGO) and reimaging optics giving a 7 \times 7 arcmin

field of view and a cycle time of less than **1 second**. For exoplanet related proposals using RISE you **must** contact the telescope director Iain Steele or instrument PI Don Pollacco before submitting your proposal for approval.

Apart from IO:THOR all instruments are now designated common user, but potential users are welcome to contact the **LT Support Astronomers**, directly via the Phase 1 address (phase1@astro.livjm.ac.uk) to discuss the capability of the instrument and feasibility of the observing programme **well before** submitting an observing proposal.

Standards

The telescope routinely observes standard stars with **RATCAM, IO:O and RINGO2**. These standards will be taken in all of the broad-band filters. NO standards will be taken for RISE or FRODOSpec). Observers who wish to obtain standards, apart from those that are routinely observed, will need to include observations of these standards in their own programmes.

Information on all these instruments is available at:

<http://telescope.livjm.ac.uk/Info/TelInst/Inst/>

Proposal process

Applications are submitted in two phases:

Phase 1 – the science definition phase

Phase 1 proposals are sent to the Telescope Allocation Committee (TAC) outlining the science case for observation and why they are **suitable for a robotic telescope**.

- See telescope.livjm.ac.uk/Info/PropInst/ for instructions on how to **prepare and submit** your Phase 1 proposal.
- Please note the requirement to specify a **Minimum Usable Fraction** (see below).
- Please note the guidance on **Maximum Group Length** available at <http://telescope.livjm.ac.uk/Info/PropInst/phase1.php#Instruments> but users with a particularly strong case should not be put off by this constraint.

Phase 2 – the observation specification phase

Once proposals have been approved by the TAC, users can enter observation requests using the Phase 2 User Interface, an online Java tool to program observation instructions and transmit them directly to the telescope

Priority Definition

Successful proposals are entered into the observing queue with one of three rankings:

- A. High priority programmes. The TAC would like to see **100% completion**.
- B. Medium priority programmes. The TAC would like to see **at least the MUF** of observations obtained, provided this does not impact on priority A completion.
- C. Low priority programmes. These programmes are used to over-subscribe the observing queue so that the telescope is not idle. There is no guarantee that any observations will be obtained. If observations are started for a programme then the scheduling software should **aim to obtain at least the MUF** of the observations, but not at the expense of 100% completion of priority A or B programmes. There

will be approximately an additional 120 hours available for priority C programmes in semester 2012A, spread across all observing conditions.

Minimum Usable Fraction

The **MUF** (Minimum Usable Fraction) was introduced by the PATT TAC to help the LT technical team schedule observations effectively, e.g., to decide whether to finish the observations for one programme or to start a new programme that may not be completed. Please specify the MUF for your programme in the technical case of the Phase 1 proposal. For example, the MUF can be used to specify that “any observations would be usable” (MUF=1%), or “a complete or nearly complete sample is essential to achieve the science goals” (MUF=90%). The TAC may revise the MUF of successful proposals.

Telescope performance

The current **rms pointing** of the LT is 6 arcsec. The current **tracking performance** provides seeing-limited images (FWHM < 0.8 arcsec) for exposures up to **1 minute** without the auto-guider (**open loop**) and up to **30 minutes** with the auto-guider (**closed loop**). Individual exposures with the auto-guider are limited to 30 minutes.

Observing conditions

We welcome applications for all available observing modes, conditions and RA ranges, particularly those that take advantage of the **robotic** nature of the LT. Time available is divided so that there is twice as much average time as good or spectroscopic time – to reflect the typical distribution of conditions in time such that half the period is in average conditions. Despite this average time tends to be the most over-subscribed. There is less competition for observations that can be done in good and/or spectroscopic conditions.

Reactive time proposals

Separate to the PATT twice-annual process, observers may also apply for Reactive time, typically no more than 3 hours via:

<http://telescope.livjm.ac.uk/Info/PropInst/reactive.php>

This is **open to all users**, regardless of their prior use of the LT or any time they may already have allocated. It is intended to allow **completion of the science goals** of existing programmes (with the LT or other telescope) especially where they enable completion of a publication, to allow observations of **unforeseen phenomena** as targets-of-opportunity, or to enable **test observations** prior to a full proposal. It is *not* to be used to apply for time denied in the normal round or for target-of-opportunity observations of known phenomena (e.g. novae, GRBs). The TAC aims to make a decision within 48 hours, and will generally respond more rapidly. Proposers should take account of the information on instrumentation etc. as per the standard application round and be able to demonstrate the feasibility of their proposal.

Please note that this time is not intended to enable proposers to submit later proposals that could have been submitted to previous open calls. In their justification for the request proposers should include a brief summary as to why the proposed observations were not submitted in the above call.

Dr Andrew Levan, Chair, PATT Liverpool Telescope Time Allocation Committee.