2017Q1 DCT Call for Proposals

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Please read the following entirely for important changes from earlier quarters.

This Call for Proposals applies only to DCT. Requests for Anderson Mesa telescopes should be sent directly to Larry Wasserman (lhw@lowell.edu).

Proposals for DCT time from Lowell users & partner institution requests for DCT time are due by Noon MST on Tuesday, 1-November 2016 and should be submitted by emailing a PDF to tac@lowell.edu. Questions should be sent to tac@lowell.edu.

The central repository of information for proposers and observers is at: https://jumar.lowell.edu/confluence/display/DCTIC/Observing+at+DCT

Science time

DCT calendars for future quarters, showing which half-nights are dark/gray/bright etc are at: http://lowell-dct.github.io

In general DCT time is quantized in half-nights, although we attempt not to break whole night allocations in to separated half-nights except if necessary for scheduling. If you require whole nights, please justify in your observing request. If you are asking for less than half-nights, please explain & justify in your observing request.

Assuming 9 engineering nights, we anticipate 81 nights will be available for science in 2017Q1. The nominal allocation ranges for each partner are:

- BU: 11 - 16 nights
- NAU: 4.5 - 5 nights
- UMd: 6.5 - 8.5 nights
- Toledo: 4.5 - 6 nights
- UT/KASI: 15 nights
- Yale: 0 nights [1]
- Lowell: 30.5 - 39.5 nights

[1] Yale is welcome to request time with other instruments than EXPRES, but it is understood that the purpose of the Yale time is to use EXPRES and that EXPRES is not yet available.

While partners may request more time than their above nominal allocation range, partner requests should provide clear priority rankings of their projects to guide schedule conflict resolution.

Target of Opportunity (ToO) proposals will be accepted for 2017Q1. ToO's using IGRINS will not be allowed as remote observing with IGRINS is not supported in 2017Q1.

Time Critical Observation (TCO) status can be requested on the proposal form. TCO status is intended for situations where an event is rare (occultation, exoplanet transit, etc), there’s been significant effort to coordinate observations across facilities, or other similar rationale. ToO’s may be requested during TCO designated time, but the TCO observer has the right to refuse the ToO. TCO requests are evaluated and granted by the Director or their designate.

How to propose for DCT time

Proposers at all institutions should use the Lowell DCT Proposal Form to communicate the details of their time requests (See below). Each individual partner has their own internal method of selecting and prioritizing which proposals are forwarded for scheduling. If you are a non-Lowell proposer, please contact your local DCT partner representative for internal deadlines and procedures at your institution. Partner requests must include at minimum the cover page information of the DCT Proposal Form, requirements for the Science Justification section varies amongst the partners.

Proposal/Observing Request Form

The latest version of the LaTeX template and style file are available for download at: https://github.com/Lowell-DCT/proposal-template/archive/master.zip

If LaTeX is correctly configured on your system you should be able to generate the example template PDF with:

unzip proposal-template-master.zip
cd proposal-template-master
make
The latest version number is v1.4.0 and was released ahead of this CfP. Please ensure you are using this latest version. Please email any questions/comments regarding the template to tac@lowell.edu.

Release notes for this latest version are:
- cleaned up bunch of cruft and clarified numerous comment sections
- clarified that “thesis” refers to both Masters & PhD theses
- merged the two cover page sections of additional observing details (“unusabledates” & “MoreObsrunInfo”) into a single section (“MoreObsrunInfo”)
- created a hidden metadata section that allows even more proposal details to be captured automatically & more reliably from submitted proposals into the scheduling system
- added example_pull_metadata.py showing a simple example of extracting the new metadata
- highlighted that page limits on Science Justification apply to Lowell proposals & partner institutions have their own page limit policies (edited)

Lowell Observatory Users

All scientific staff of Lowell Observatory are eligible to apply for DCT time. Incoming science staff are eligible to apply, even if the proposal deadline is before their start date. Departing staff members are eligible to apply if the proposal deadline is before their departure date.

Lowell proposers for DCT time should submit proposals in PDF format for DCT to the TAC at tac@lowell.edu using the above LaTeX template and style file. The template and style file have changed based on feedback from proposers and TAC members, so please read the instructions carefully. Note that TAC members may not be experts in your sub-field and you should write to a non-specialist audience.

DCT partners

Observers at DCT Partners should route their proposals through their local TAC process, which may have additional requirements from the above LaTeX proposal form. Observing requests should be submitted using the latest LaTeX proposal form and style file (see above), although partner requests need only fill out the Cover Sheet and Observing Request Details sections. Not all partners require a Science Justification section.

Partner representatives: Please submit your partner time requests to tac@lowell.edu before the deadline. Please make sure you give a clear prioritization amongst the projects you are submitting to help guide the resolution of scheduling conflicts. Please send any questions to tac@lowell.edu.

Remote Observing

If you want to observe remotely, you should indicate in your application that you are requesting remote observing support and we will do our best to accommodate as many of those requests as possible. Depending on the number of requests and the staffing levels required we may not be able to satisfy every request. Requests are shown on the DCT schedule as either “remote requested” (if the request has not yet been approved) or “remote” (if the request has been approved & staff are available). Requests for remote observing support made after the schedule is drafted are more difficult to accommodate and face a greater risk of denial. Following the 2016Q2 motorization of the DeVeny mechanisms we now support remote observing with DeVeny, however users must pre-select their grating as grating changes remain a day-time only operation to minimize risk. Remote observing will not be supported with IGRINS in 2017Q1.

Instruments Available

For a brief overview of DCT’s current instrumentation and the near-term future instrumentation plans, see the “DCT Instrumentation Current & Future” page on Confluence (https://jumar.lowell.edu/confluence/pages/viewpage.action?pageId=23234141).

For this quarter we are planning:

- LMI: Available.
- DeVeny: Available [1]
- IGRINS: Available until ~1-March.
- NIHTS: Not available following the irreparable damage to its fold mirror.
- DSSI: Not available
- RIMAS: Not available
- EXPRES: Not available
- [1] DeVeny will be taken off the telescope for two 5 day periods in January/February for maintenance and to address a few issues. These will likely be a Monday-Friday of dark time in January and similar in February, however the exact dates have not yet been selected.

LMI: Available

The Large Monolithic Imager (LMI) covers a field of view of 12.3’ square. LMI’s two filter wheels hold 17 filters (plus two open slots and a dark blank). Filter changes will normally only be done during daytime hours to minimize risk. Users should specify their filters in their proposals to ensure the necessary filters are mounted for their observing run. Available filters are: Johnson-Cousins UBVRI, SDSS ugriz, VR, H-On, H-Off,
OIII, Y-ish (a UKIDSS Y, extended in the red) filters and three Wolf-Rayet emission line filters (WC, WN, and CT). The narrow band comet filters are also available, but anyone wishing to use them should contact Dave Schleicher (dgs@lowell.edu) first. The comet filters are 4” rounds, and will vignette the LMI field of view.

More information on LMI can be found on its Confluence web page and in the LMI manual. Questions about LMI should be directed to Phil Massey (massey@lowell.edu).

DeVeny: Available

The DeVeny Spectrograph is a moderate resolution optical spectrograph. The DeVeny spectrograph was built and known at Kitt Peak National Observatory (KPNO) as the KPNO White Spectrograph, and had a long career at the 36” telescope there before being retired. Lowell Observatory acquired the spectrograph from KPNO on indefinite loan in 1998, a new CCD camera was built for it, and the instrument was further modified for installation on the 72” Perkins telescope in 2005. Following 8 years of service there, it was removed in 2013 for upgrades for installation on the DCT instrument cube in February 2015. Information on the DeVeny can be found linked from the Observing at DCT web page.

- Slit viewing camera: Pixel scale: ~ 0.253 arcsec/pixel (always binned 2x2) Field of view: 95 x 73 arcseconds
- Adjustable slit - Slit focal plane plate scale is 0.153mm/arcsec (0.006inch/arcsec on the micrometer). Maximum slit length is 1.9arcmin with the decker, 2.5+arcmin without
- Spectrograph CCD pixel scale: ~ 0.34 arcsec/pixel (spatial direction).
- Filters: pre-slit - clear, 2.5, 5, and 7.5 mag ND filters post-slit - clear, GG420, GG495, OG570
- Gratings:
  - 150/mm - 5000A blaze, 4.3A/pix - roughly twice the imaged spectral range of the 300g/mm grating - acquired on loan from KPNO
  - 300/mm - 4000A blaze, 2.17A/pix, R ~ 920, 4400A FSR
  - 400/mm - 5000A, 1.66A/pix, R ~ 2850, 3400A FSR
  - 600/mm - 5000A blaze, 0.58A/pix, R ~ 3450, 11800 A FSR
  - 2160/mm - 5000A blaze - this grating is not well characterized, but is thought to have rather poor performance
- Additionally we recently secured the loan of five more gratings from KPNO; These have not yet been characterized in the DeVeny, but will be available for use in 2017Q1:
  - 300 l/mm - 6750A blaze
  - 600 l/mm - 4900A blaze
  - 500 l/mm - 5500A blaze
  - 600 l/mm - 6750A blaze
  - 831 l/mm - 8000A blaze
- Calibration lamps: Hg, Ne, Ar, Cd.

Following the 2016Q2 upgrades to DeVeny to motorize its mechanisms, DeVeny is available for remote observing. Note that swapping the grating remains a daytime operation to minimize risk. Questions about the DeVeny should be directed to Tom Bida (bida@lowell.edu).

The DeVeny will be removed from the instrument cube for two 5-day periods in January/February to work on some improvements inside the dewar toward reducing flexure.

IGRINS: Available until ~1-March

The Immersion Grating Infrared Spectrometer (IGRINS) is a high-resolution near-infrared spectrograph covering H & K bands (1.45-2.45 microns except where the atmosphere is opaque) in a single exposure with a resolving power of 45,000. For background on IGRINS instrument performance, please see Park et al..

IGRINS+DCT science time for this first visit is planned between 1 October 2016 and 28 February 2017.

It is the intention that IGRINS will visit the DCT for half a year at a time over the course of 3 years. Future visits are not yet scheduled. As a high-resolution, near-IR spectrograph, IGRINS can be used in both bright and dark time.

IGRINS observers should not expect the telescope operator to know how to use IGRINS and will need proper training before solo observing. This can be organized after time has been allocated, but observers should anticipate two nights of training, which can also be completed by joining other experienced IGRINS observers. Remote observing with IGRINS will not be permitted this quarter. Half- and full-night programs are welcome. Because remote observing is not supported this quarter, ToO programs using IGRINS will not be allowed. (However, per DCT policy, ToO programs using other instruments will be allowed to interrupt IGRINS observing time unless the time is designated as a Time Critical Observation.)

Typical observations with IGRINS on DCT are expected to be ABBA nod sets with 300 second exposures. For a K=10 target, this should provide peak signal-to-noise of ~150. The bright limit for IGRINS on DCT will be K=4, and typical targets should be fainter than K=8 to keep exposure times greater than pointing and acquisition overheads. The faint limit for IGRINS will be K~13, depending on the observing conditions and the desired signal, with 2 hours of exposure time providing signal-to-noise ~90 at this limit. The DCT facility guider is not able to reach focus when used with IGRINS. As such, IGRINS users should expect to do any guiding with the IGRINS slit viewing camera until we are able to fix this. It is reasonably likely that this will not get fixed for this IGRINS run. The IGRINS slit is ~0.63 arcsecond wide and 9.42 arcseconds long. Blind offsets to a target from a star on the IGRINS slit-viewing camera may be feasible, but has not been tested. Blind offsets from the facility guider is not supported at this time. The proprietary period for IGRINS observations is 24 months.

The archive of IGRINS newsletters is located at this site: https://wikis.utexas.edu/display/IGRINS/IGRINS+Newsletters
It is strongly recommended that you have one of the IGRINS team members as a collaborator on your proposal. They can review your proposal for feasibility ahead of the deadline, assist with your data reduction and observing questions, and ensure that you are prepared for your observing run. It is unlikely that they will be able to support these efforts as non-collaborators. If you want a suggestion of a collaborator, contact Greg Mace (gmace@astro.as.utexas.edu), Hwihyun Kim (hwihyun@astro.as.utexas.edu), Jae-Joon Lee (leejjoon@kasi.re.kr), or Lisa Prato (lprato@lowell.edu) for a contact in your field of study.

**NIHTS: Not available**

NIHTS will not be available for observing in 2017Q1 due to the 17 September accident when the NIHTS mirror was damaged beyond repair when it was knocked off its mount and fell to the bottom of the cube.

We considered several options for NIHTS, trying to balance costs, benefits, & risks. We decided that the least worst option is to move forward with procuring the dichroic as soon as possible & to not observe with NIHTS until the dichroic is available & installed. Our current very-rough-estimate is that the dichroic can be installed in April 2017, though there is a good bit of uncertainty in that estimate in both directions. Additionally, once the dichroic is installed we will need to commission the NIHTS/LMI simultaneous observing mode. Right now our best estimate is that NIHTS will be available for science operations in 2017Q3. However, as work proceeds and the schedule estimate is refined we will make additional announcements toward when we expect to release NIHTS to science operations. If we run into significant additional delays with the dichroic project, we will re-evaluate whether to temporarily re-install an aluminum or gold fold mirror for NIHTS.

Proposers should contact PI Henry Roe hroe@lowell.edu with questions.

**DSSI: Not available**

DSSI is a visitor instrument from Elliott Horch of Southern Connecticut State University. DSSI provides simultaneous diffraction-limited optical imaging (FWHM~0.04" at 650nm) of targets in 2 channels. Questions about DSSI should be directed to Elliott Horch (horche2@southernct.edu) or Gerard van Belle (gerard@lowell.edu).

**RIMAS: Not available**

RIMAS is not yet available this quarter.

**EXPRES: Not available**

EXPRES is not yet available this quarter.