SWINBURNE KECK TIME – APPLICATION POLICY GUIDELINES & PROCEDURES

SCOPE

This document provides policy guidelines and procedures for applying for Swinburne time on the Keck telescopes. To be read in conjunction with the STACK POLICY AND PROCEDURES.

The STACK (Swinburne Time Allocation Committee for Keck) assesses Swinburne Keck proposals and puts forth time allocation recommendations to be approved by the CAS Director. When assessing Keck proposals, the STACK will focus on maximizing the scientific return for Swinburne. Thus, the STACK assessments are not based purely on scientific merit but will reflect a balanced consideration of how each proposal maximizes the scientific outcomes for Swinburne. As a result, higher-risk/higher-payoff proposals may have a higher chance of being awarded Swinburne Keck time

FOR OBSERVERS

CALL FOR PROPOSALS

A call for proposals (CfP) will be issued by the STACK Technical Secretary (TS) once the number of nights available on each Keck telescope and their lunation distribution and any other restrictions has been determined by Caltech and Keck. These restrictions will be stated in the CfP and should be carefully considered by proposers. The CfP will also include a strict deadline for proposal submission.

APPLICANT ELIGIBILITY

CAS staff and postdocs who have a PhD in astronomy/physics may act as PIs of STACK proposals. For PIs on fixed-term contracts, the contract end date must be stated clearly on the proposal form. Postdoc PIs are required to have a permanent CAS staff member as a CoI who must accept responsibility for the data and outcomes of the observations, including ensuring a CAS-led publication is forthcoming within the 1.5 year period described below. The staff guarantor will be listed on the internal Keck publication database. When programs are designed to include data for a PhD student, proposers should consider that Keck observations cannot be guaranteed and student theses should not be designed to rely exclusively on Keck data obtained through the STACK. The role of the proposal in the student's thesis work should be

detailed in the proposal. In addition, the role of all SUT and non-SUT Co-Is must be fully specified in the proposal. Successful proposals are expected to result in Swinburne-led publications. Ideally this would mean a Swinburne first author but it is recognised that a case can be made for Swinburne leadership with other author priorities. This case should be presented to the STACK and will be taken into consideration. Proposals should clearly identify the leadership plan for publication(s).

PUBLICATIONS

Any publications related to STACK-awarded time must have SUT as an affiliation on the publication noting the expectation that all successful proposals result in publications with a CAS member as the first author. Even if the CAS staff member moves to a different institution, SUT must be listed as an affiliation. All publications using data from STACK allocations, regardless of lead author, must include the Keck observing code, e.g., 2018B_W0123D, in the Acknowledgements. It is expected that data acquired via STACK allocated time are to be published in a timely manner, with submission to a refereed journal to occur no later than 1.5 years after the last date of observations for a given project. The lack of publications for completed projects will be considered in the ranking of the PI's and Co-Is' future proposals and will impede their chances of getting more Keck time.

PIs are requested to update the observation, data status and publications on the internal Keck publication database one month prior to each new CfP. The technical secretary will make an initial entry based on scheduled nights. The SACK chair and Director will contact PIs and staff member guarantors with outstanding data (taken more than 1.5 years prior to the CfP) in advance of the CfP to discuss any mitigating circumstance and to assist with developing a plan to ensure data is published in a timely manner. PIs may be advised to postpone further proposals until their plan has been implemented.

PROPOSALS

THE PROPOSAL FORM

The proposal form consists of two parts. The first part is an online cover sheet that is obtained from the Keck Observatory used-based webpage (i.e., the Keck user login page). The second part is a simple LaTeX pro-forma that can be found on the Keck CfP webpage or from the TS. The PDF version of the proposal (cover sheet and pro-forma) should be submitted via email to the TS by the advertised deadline. The proposal pro-forma includes specific instructions on information that is to be included in each section.

Proposers should include all relevant information in the proposal. Any significant information relevant to the proposal that emerges after the proposal submission deadline must be submitted to the TS in writing and assessed by the STACK Chair. No discussion of submitted proposals is permitted between proposers and STACK members.

SCIENTIFIC JUSTIFICATION

The pro-forma Scientific Justification section is typical of proposals and should clearly set out the scientific background, importance, and expected/possible scientific outcomes of the proposed observations. In addition, the Scientific Justification of STACK proposals must include the scientific reasons why the proposal should be granted time on the Keck telescopes.

TECHNICAL FEASIBILITY

The Technical Justification section is crucial for evaluating technical feasibility of the proposed science and will be carefully considered by the TA (Technical Assessor) and STACK. The TA will evaluate the technical feasibility of the proposal and report their findings to the STACK. The Technical Justification section should clearly explain and detail how the science proposed in the Scientific Justification would be undertaken with Keck. It should not be used to explain, for example, target selection, sample definition, etc.

It is crucial that PIs carefully justify the telescope time, lunation and instrument requirements. The PIs must include a justification on why the number of hours or nights of telescope time is requested and why the lunation is required. This could include SNR calculations, use of ETCs, or previous example spectra taken on the same or other telescopes. Equally important is a discussion of whether or not the science can be done during other lunations. Finally, a clear description is required of the various instrument set-ups, filters, grisms/grating, etc. that are needed to achieve the proposed science. Any aspects of flexibility, in scheduling, lunation, instrument, wavelength range, resolution etc., should be justified in the proposal. In addition, a backup program must be presented (in the Backup Program section) in the event of bad weather or technical problems at the telescope. The backup program must include the science goals, choice of instrument, instrument set-up, and basic details of the observations for technical feasibility assessment.

It is the PI's responsibility to ensure that the submitted proposal includes all information relevant to assessing its technical feasibility "as is", with no further assumptions required by the STACK for proper assessment.

If the STACK cannot establish the feasibility of a proposed program of observations, or proposed variations on it (e.g. with respect to lunation, instrument etc.) then it is clearly difficult for the STACK to award that proposal time on Keck. Proposers are strongly encouraged to discuss technical feasibility issues with CAS staff, including the TA, and/or Keck staff when preparing their proposals, i.e. before the submission deadline.

MINIMUM TIME REQUEST

The minimum time request is 0.5 night. PI's are encouraged to consider half night requests in order to maximize the distribution of lunations available for each telescope.

MAXIMUM TIME REQUEST

There will be no limit to the total amount of time requested by any applicant. Per the terms of the agreement with Keck, there are 10 nights allocated to Swinburne each semester (20 nights per year). Applicants should carefully consider larger requests for a single proposal given the limited number of nights. Nevertheless, all allocations, regardless of their size, will be considered against their likely scientific outcomes.

LONG TERM STATUS

Long Term Status requests (i.e., proposals mandating Keck nights over multiple semesters) are not allowed. However, multi-semester programs will likely be introduced in upcoming semesters, pending discussions with CAS staff.

If a project is likely to require time in more than one semester, the amount of time required in future semesters should be noted in the proposal, including the Keck proposal cover sheet, and a new proposal should be submitted for the next relevant semester(s). Approval of a proposal in one semester does not imply that it will be favoured in subsequent semesters. Reasons for future requests should be made clear in the current proposal. The outcomes of previous allocations for the same project should be made clear as well.

STACK MEMBERSHIP

All PIs that submit a proposal will be automatically included in the STACK process. The Director and SACK Chair will decide whether their contribution will be as a reader or a panel member of the STACK. The selection between reader and panel member will depend on the current distribution of panel members, as well as their expertise. Thus all PIs are expected to allocate time to the STACK process, which begins directly after the Keck proposal deadline. Please see STACK Policy & Procedures document for further details.

SCHEDULING OF SUCCESSFUL PROPOSALS

Once the final recommended time allocations are determined, the successful proposals will be put forward to Keck and PIs will be notified of the recommended allocations as soon as possible. It is possible that Keck will not be able to schedule some proposals in their submitted form, or during their requested dates, thus the STACK allocated time is not guaranteed.

KECK SCHEDULING

It is very important that PIs carefully select the “preferred” and “acceptable” dates on proposal cover sheets and provide the largest effective date range(s) to fully achieve their science. The TS receives a preliminary telescope schedule from Keck and if a Swinburne proposal has not received scheduling during the marked “preferred” or “acceptable” date range(s), as entered on that proposal’s Keck cover sheet (i.e., the proposed science may be compromised by the scheduling constraints), the TS will inform the PI prior to the release of the official telescope schedule. If such proposals have some degree of flexibility, then the PIs and TS may liaise with the Keck schedulers to find a mutually satisfactory solution. It may also be possible to trade nights with other scheduled users of Keck (from any institution). However this option typically needs to be done prior to proposal submissions for either institution. If, after exhausting these possibilities, a successful proposal cannot be scheduled, the TS will inform the

STACK members who will then offer the time to the next best proposal(s) that can properly make use of the available time.

Considering the above, it is important that proposers detail the flexible aspects of their proposal. Failure to do so may mean that their otherwise highly ranked proposal cannot be put forward to Keck for scheduling.

FEEDBACK

The primary reader will distill the STACK comments to provide feedback on proposals, but this will be limited to a brief summary relating to their clarity, scientific merit and, on a best effort basis, their feasibility. The feedback will be reviewed by the STACK Chair. Feedback will be made available as soon as possible to PIs after the final recommended allocations have been sent to Keck and proposal outcomes have been made available to all applicants.

TARGET OF OPPORTUNITY

Target of opportunity (ToO) observations can now be triggered on all classically scheduled programs at Keck. Further information is provided here:
https://www2.keck.hawaii.edu/inst/common/too_policies.html

Target of Opportunity (ToO) proposals are directed at objects with unpredictable appearance dates for which a short, timely observation (up to one hour) may be of great value. ToO programs are not intended for observations that can be anticipated in advance (e.g., Cadence observations).

Proposing for Partnership ToOs

This policy is based on the existing UC ToO policy. Swinburne, Caltech, NASA, UC or UH researchers can propose to their respective TACs for cross-institutional ToO (“Partnership ToO”) observations on Keck 1 and/or Keck 2. TACs should award Partnership ToOs only for highly ranked programs. These programs may interrupt programs assigned to any institution, including programs with partial-night allocations. 2) Each TAC will judge their respective community’s proposals. Swinburne can allocate up to 2 triggers for Partnership ToO observations per semester. NASA and UH TAC’s can allocate up to six triggers for Partnership ToO observations per semester. CIT and UC TAC’s can allocate up to seven triggers for

Partnership ToO observations per semester. The duration of each trigger shall not exceed one hour. Each TAC will submit a list of approved Partnership ToOs as well as their full proposals to WMKO as part of the routine reporting of successful proposals.

Individual TACs may designate a few nights (partial or whole) as exempt from ToO interrupts. This designation must be scientifically motivated, namely that such interruptions would seriously compromise the scientific return of the entire observing time. Proposers should make any such requests to their individual TACs as part of their observing proposal. Use of these exemptions is expected to be rare. Nights should be designated as "uninterruptible" by the institution's scheduler during the semester scheduling process, via the scheduling tool.

The standard application form will be used for ToO proposals. Proposers should include all relevant information in the Technical Justification Section, which not only includes a demonstration of observing feasibility within the 1 to 2 hours blocks, but they must also include all possible instruments what would work for your observations, triggering criteria, probability of triggering etc. ToO proposals will be ranked against other non-ToO proposals within that round. The STACK will assess the relative ranking with the other proposals, accounting for the factor of 2x hourly rate charge for ToO observations.

Scheduling Partnership ToOs

ToOs may be scheduled at any future time in the semester in which they were awarded. In order to initiate a ToO, observers must log in to the WMKO Observer Home Page and then use the ToO GUI to select a specific night, time, instrument configuration, and coordinates for their ToO. Both Partnership and Institutional ToOs shall be scheduled through this interface. The WMKO web interface will be the sole source for managing the triggers, i.e., no arrangements via phone calls or emails to the classically scheduled observer (a.k.a. the "Observing PI" hereinafter). b) Any ToO program that requires LGSAO must be invoked and the target coordinates submitted prior to 3:00 pm HST on the day of the observing run. ToO programs that require LGSAO can only be invoked on regularly scheduled LGSAO nights.

ToOs are expended when they are scheduled, not when they are executed. Teams will not recover ToOs if the observation is canceled or unsuccessful for any reason (e.g., weather or instrument fault). d) The public interface of the ToO GUI shall indicate the time, instrument, telescope, instrument configuration, and ToO PI of any scheduled partnership interruptions. Once a ToO is scheduled, the contact information for the Observing PI and the ToO PI(s) will be shared with each other, to facilitate coordination of the observing.

Partnership ToOs are limited to two per telescope per night. A single partner may not use two Partnership ToOs on the same telescope in one night, but they may use two Partnership ToOs to interrupt both telescopes on the same night.

For each ToO interrupt, the maximum duration is 1 hour of elapsed time (i.e., wall clock). This includes calibration and restoring the instrument mode to its state prior to the ToO interrupt or to another state as mutually agreed with the Observing PI.

The Observing PI will make best efforts to promptly turn over the telescope to the ToO PI at the scheduled ToO time . The observer may briefly delay handover of the telescope in order to complete their current exposure or essential observing sequence (e.g., one AB nod pair). After that, it is expected the Observing PI will yield the telescope to the ToO PI, unless the latter agrees to wait longer.

ToO instrument changes will be allowed on a limited basis starting in the 2019A observing semester. Only instruments with "Ready" status as indicated on the ToO GUI via the observer login page and instruments designated in TAC-approved programs can be selected.

It is the responsibility of the ToO team to carry out the observations. The ToO team may carry out the observations themselves. If remote observing, the team is responsible for making appropriate arrangements with the Remote Observing Room, including reservations and testing in advance. Alternatively, the ToO team may ask the Observing PI to carry out the observations, which will include an offer of co-authorship. The Observing PI is not obligated to do the observing.

Upon completion of the ToO, the ToO PI shall use the Keck web system to submit a brief summary of the execution of the ToO. Time Accounting and Proprietary Period for Partnership ToOs

At the conclusion of each semester, WMKO will report to each partner the time used, the associated ToO programs, and the interrupted Observing PIs.

Time imbalances between partners arising from Partnership ToOs will be corrected through each partner's semester time allocations and/or WMKO's giveback science time. Because ToOs are likely triggered in suitably good weather, their time usage will be charged at a rate of twice the normal observing time, i.e., 2 hours. The compensated time will be awarded to the interrupted PI, or the responsible staff member in the case of a postdoc PI who is no longer employed by Swinburne. Shortly after a ToO occurs the interrupted PI must email the TS a brief (1 paragraph) summary containing the following: 1. Time lost (proposal ID, duration, instrument, object position, lunation), 2. Flexible plan for compensation time (duration, instrument, object position, lunation). The information will be provided to WMKO and Caltech for scheduling.