



**DATE:** September 8, 2020

**TO:** Distribution

**FROM:** Michael Werner for the JPL Palomar Advisory Committee (JPAC)

**SUBJECT:** JPL/IPAC Palomar 200-inch Observing Time Proposals for 2021A, covering the period 01 February 2021 – 31 July 2021

Proposals for 200-inch observing time in the 1st semester of 2021 should be submitted to the JPL Palomar Advisory Committee (JPAC) by

**5:00 PM California Time, Monday, October 5, 2020**

The following proposal information is enclosed:

- Instructions for filling out the on-line cover sheet and submitting your Palomar proposal, which begin on p6 below

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For one-stop shopping and easy access to all the documents cited below, see our JPAC web site:

<http://palomar.ipac.caltech.edu>

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All proposals for JPL Palomar time must be submitted via our proposal web site:

<https://ipac.ipac.caltech.edu/jpac/proposal.php>

To submit a proposal, you must fill in some basic information and attach your Caltech coversheet and your scientific justification, both in PDF format. You can find a link to the Caltech P200 coversheet here:

<http://www.astro.caltech.edu/observatories/coo/solicit/2021A/C200.html>

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A list of instruments available for 2021A and links to performance and operational information is available on the Palomar observers web site:

<http://www.astro.caltech.edu/palomar/observer/P200observers.html#instruments>

*Private* and *Semi-private* instruments may be requested only with the prior approval of the instrument builder. Please include in the discussion a confirmation that appropriate arrangements have been made.

### *PARVI and NESSI*

Two new spectroscopic instruments, PARVI and NESSI, will be available to the JPAC community in 2021A on a shared-risk basis. Detailed information about each can be found on the JPAC web page

<http://palomar.ipac.caltech.edu>

under the "Proposal Call" tab

### **PARVI:**

PARVI is a high spectral resolution, near infrared spectrometer presently being commissioned at Palomar.

Wavelength Range	1.1-1.8 $\mu\text{m}$
Spectral Resolution	$R \sim 90,100$ ( $1.65 \mu\text{m}/\lambda$ )
Angular Resolution ( $1.2\lambda/D$ )	$\sim 0.82 \times (\lambda/1.65 \mu\text{m}) \text{ arcsec}$
Entrance Solid Angle (for extended sources)	$\sim 0.022 \times (\lambda/1.65 \mu\text{m})^2 \text{ arcsec}^2$
Fibers	Star, Sky, LFC, spare
Point Source Sensitivity (SNR/pixel)	>25 in 600 sec H=8 mag depending on seeing
Contact info: Gautam Vasisht ( <a href="mailto:gautam.vasisht@jpl.nasa.gov">gautam.vasisht@jpl.nasa.gov</a> ), Chas Beichman ( <a href="mailto:chas@ipac.caltech.edu">chas@ipac.caltech.edu</a> ), Dimitri Mawet ( <a href="mailto:dmawet@astro.caltech.edu">dmawet@astro.caltech.edu</a> ) and Rebecca Oppenheimer ( <a href="mailto:bro@amnh.org">bro@amnh.org</a> )	

Please contact Gautam Vasisht or Chas Beichman if you are considering a PARVI proposal for 2021A.

### **NESSI:**

NESSI is a wide-field, multi-object J-H-K band spectrograph (using non-deviating gratings) which can also be used as a J, H, K or narrow-waveband, wide-field camera. The spectral resolving power is  $R=250$  in J-H-K, or  $R=1100$  in J, or H, or K. Multi-object capability over a 6 arcmin field of view is provided through slit masks, or the spectrograph can be deployed in slit-less or long-slit mode and features a plate scale of  $0.22''/\text{pixel}$ . NESSI is currently undergoing commissioning and is available for shared-risk use. NESSI also has a known scattered light issue that is currently being mitigated. Rob Zelle at JPL is your POC for NESSI. Please contact Rob if you are considering a NESSI proposal for 2021A.

**IMPORTANT:** As of this writing (September 2020) Palomar and the Hale Telescope continue to operate under [limited operations guidelines](#) because of the global pandemic. In particular astronomers are not permitted on-site at Palomar and must execute all observations by [Remote Observing](#) and available instrumentation may be limited. Because this is a dynamic situation, we have chosen to go ahead with this solicitation; the results will either guide or govern JPL/IPAC utilization of the 200-inch in 2021A.

If you have questions about how these issues might impact your proposal, please contact Mike Werner [mww@ipac.caltech.edu] well before the proposal deadline.

### **Further Instructions:**

Applications for JPL 200-inch time will be accepted only from JPL/IPAC scientists as the principal investigator (PI). All PI's should submit one proposal for each 200-inch project. The PI is expected to be an experienced observer, with previous use of the requested instrument, or to be prepared to learn how to use the requested instrument prior to any assigned time. The PI is also expected to be present at the telescope – or remotely - for the full duration of any time allocated. Postdocs may apply as PI, but the proposal must be accompanied by a letter from the JPL advisor describing the qualifications of the postdoc as a Palomar PI. This letter can be sent via email to Mike Werner ([mww@ipac.caltech.edu](mailto:mww@ipac.caltech.edu)), and it must arrive by the proposal deadline.

**JPL Engineering time:** A limited number of JPL engineering nights will be available to JPL scientists in the 2021A semester. No more than two nights will be awarded to any PI (or team). This time can be used to test new instruments or observing techniques on the Hale Telescope, but requires the agreement of the Observatory Director. If you wish to apply for this time, please contact Mike Werner ([mww@ipac.caltech.edu](mailto:mww@ipac.caltech.edu)) at least one week prior to the proposal deadline. A full proposal for this time must also be submitted on or before the deadline. In this proposal, the PI must make it clear that the request is for JPL engineering time, indicate what support might be required from the Palomar staff, and whether or not the engineering nights need to be scheduled contiguously with night(s) for which a science proposal is also submitted. You should also describe briefly the science which will be enabled by the engineering activities.

**Large Projects:** We encourage large-scale observing projects by individuals or teams that will use the facilities of the 200-inch telescope to attack problems that would be difficult to engage within the constraints of semi-annual allocations. Large Projects should require more than five nights of observing time per semester, or more than 10 nights of observing time per year. Accepted Large Projects will be allocated time for two semesters, with the possibility of renewal. A completed cover sheet and a comprehensive 1-page status report must be submitted during the open call for proposals for the second semester of an approved Large Project. Large Projects already allocated time in two semesters must be resubmitted, following updated proposal instructions, if additional time is sought. In all cases a clear indication of the duration of the project must be given. Proposers of Large Projects must follow the same application process as other proposers, with the exception that an additional page of scientific justification (a total of up to 3-pages, maximum) may be used for Large Project proposals. Large Project proposals will be evaluated by the JPAC simultaneously with standard proposals. There is no *a-priori* allocation of time to Large Projects.

**Strategic Projects:** Several years ago we initiated a program of strategic projects through which one could receive an award of observing time valid for four semesters with only progress reports required to renew the program for each semester. We are hoping to reinstitute this program beginning with the 2021B semester, but no new strategic programs are solicited at this time.

Under the editorship of Lin Yan, COO has initiated an electronic newsletter to be made available several times per year containing information of interest to users of the 200-inch telescope. The issues published to date can be found at

<http://www.astro.caltech.edu/palomar/observer/newsletter.html> and present interesting information relevant to the 200-inch. The second issue, in particular, presents information about data processing packages available for a number of the 200-inch instruments. The newsletters are posted on the palomar.ipac site referenced above.

Finally, a number of JPL and IPAC colleagues who are experienced users of Palomar instruments have volunteered to provide tips and advice about proposing and using the data from the different instruments. This roster is presented here. I thank these folks for their willingness to help out in this fashion:

Instrument	Contact
Triple Spec	Eric Mamajek
	Federico Marocco
P3K	Seth Meeker
P3K+PHARO	Dave Ciardi (IPAC)
DBSP	Dan Stern
	Joe Masiero
WIRC Imaging	Chris Gelino (IPAC)
	Jacqueline McCleary
WIRC - Pol and exoplanets	Max Millar-Blanchaer
CWI	Phil Appleton (IPAC)
NESSI	Rob Zellem
PARVI	Gautam Vasisht
	Chas Beichman (IPAC)
Fatherly advice	Geoff Bryden

# PROPOSAL INSTRUCTIONS

## The Cover Sheet

All observers must fill out the Caltech on-line cover sheet. Fill out the form, save it in PDF format, and then upload this file, together with your science justification, via the JPL on-line proposal submission system web site. The target list should be part of your scientific justification.

When filling out the Caltech coversheet, please take care to:

List the relative priority in case you submit more than one proposal.

Enter the number of nights requested in the appropriate column. Indicate your preferred run or runs with a "P", and acceptable runs with an "A", regardless of type (light or dark). For maximum flexibility in scheduling, it is important to know all the times you can observe.<sup>1</sup>

Fill in the instrument you wish to use. An up to date listing of all 200-inch instrumentation is available at <http://www.astro.caltech.edu/palomar/observer/P200observers.html#instruments>. *Private* and *Semi-private* instruments may be requested only with the prior approval of the instrument builder. Please include in the discussion a confirmation that appropriate arrangements have been made. If you list "Own Equipment," identify the instrument in the proposal abstract.

If you wish to use more than one instrument in the course of the project, use a separate line for each instrument. At the 200-inch telescope, you may request instruments to be installed simultaneously at the prime focus and the Cassegrain focus but you must fully justify the request in your proposal. Secondary instruments should be requested *only* if they are *integral* to the program and if there is a *very high probability* that they will be used during the observing run.

Check the box provided if scheduling constraints apply to the request. Give the specifics in the proposal abstract and in the body of the proposal. **Following this instruction is particularly important now that more and more programs are requesting specific nights in order to study exoplanet transits and eclipses. You should be filling out a separate form detailing your timing requirements [see below].**

Observers may request full or half nights for Hale/P200. Observers should be advised that it may not always be possible to schedule partial night allocations.

<sup>1</sup>The system of *P*s and *A*'s to designate preferred and acceptable runs (respectively), intended to take the guess-work out of scheduling, rests on two conditions: First, observers need to be as generous as possible in designating acceptable runs, since overly-constrictive selections make scheduling difficult and, in extreme cases, may even preclude the assignment of observing time to the project. A good approach would be to tag any observing run as Acceptable if the data can be obtained during that period. Second, the scheduler will not assign observing time in a run that has not been tagged by the observer with a *P* or an *A*. Should circumstances obtain that such assignment might be needed, the scheduler will discuss the situation with the observer before any exception to the rule is applied. Putting all the *P*s and *A*'s on a single line means you want the time scheduled in a single block, if possible. If you want the time distributed into two or more blocks, use a separate line for each block

**Remote Observing:** DBSP, WASP, WIRC, CHIMERA and TripleSpec may be operated by remote observing, eliminating the need for and cost of travel to Palomar. **For more information about remote observing see:**

<http://www.astro.caltech.edu/observatories/coo/rof/ROF.html>

COO requires a one-month in advance request for remote observing at the 5-meter. However, we encourage JPL usage of this capability because it compensates for lack of travel funding to use the 5-meter. The web form for submitting remote observing request is here

<http://palremote-reserve.caltech.edu>

### **Scientific Justification, Target List and Summary of Previous Allocations**

The scientific justification should include:

**A short description of the project (2 pages maximum, 3 pages maximum for Large Projects),** including your science goals, methodology, and the appropriateness of the Palomar 200-inch telescope. If this is an ongoing project, describe what has been done. If the project will require time beyond the current semester, describe how much observing time will be needed to complete the work. Remember to **give the big picture** (e.g., the total scope of the project, what will be done at Palomar vs. what will be done with other facilities, who will do the work, etc.). Remember, not all members of the TAC will be experts in your field, so make sure you explain the significance of your research to a broader audience.

- A detailed **estimate of the time required** for the observations. No standard format can be specified for this, as it will vary from program to program. Obvious factors to take into account are the brightness of your objects, the signal-to-noise ratio required, instrumental characteristics, potential systematic errors and how you will deal with them, and assumptions about sky brightness (i.e., phase of the moon). Be as specific as you can.
- Up to **two pages** of figures, tables, and references supplementary to the written discussion. We strongly prefer \*legible\* figures which can be read by the JPAC and used to publicize the results of our work at Palomar.
- **A list of objects to be observed**, including name, coordinates, and approximate magnitude (specify band). In case objects will be selected from large samples, it is not necessary to list all the objects; however, make sure that in the text discussion the sample and its size are well-defined, and the selection criteria and the number of objects to be observed are specified clearly.
- Any **scheduling constraints** that may apply. If you are proposing observations which must be scheduled at specific times [e.g. occultations, transits, critical phase coverage of a binary, etc.], check the Date-Specific box on the proposal cover sheet and justify the date specificity. For the 200-inch, download the Date-Specific supplement to the proposal cover sheet <http://www.astro.caltech.edu/observatories/coo/solicit/2021A/DS.html>, fill in the required information,

and include it in your proposal as an addendum to the cover sheet. If there are dates when you cannot observe, or if the observation must be made within a window of a couple of days, again check the Date-Specific box and explain and justify the need for the specificity in the proposal.

- The **status** of 200-inch observing time allocated to you over the past two years, plus an updated list of publications – including conference proceedings, abstracts, and submitted papers - from the past two years based solely or in part on Palomar observations. **It is particularly important that you provide this publication information, not only in support of your proposal, but in support of JPL’s investment in the 200-inch.**
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### **Shared-Risk Observing**

Shared Risk Observing is a transitional phase between the final engineering tests of a new instrument and its use for general observing. This scheduling plan has the twofold goals of (a) allowing researchers to use the instrument to acquire scientific data for their programs and (b) allowing the instrument builders to check its performance in an operational environment. Observers using an instrument on a *Shared Risk* basis do so with the understanding that the builders may be present during the run and may need to:

- interrupt the science observing to adjust or modify the instrument,
- perform on-sky test measurements,
- obtain copies of the observer’s data to evaluate its performance.

### **Publication Acknowledgement**

We request the following acknowledgement to appear in any publication based wholly, or in part, on observations obtained at the Hale Telescope: “Based on observations obtained at the Hale Telescope, Palomar Observatory as part of a continuing collaboration between the California Institute of Technology, NASA/JPL, Yale University, and the National Astronomical Observatories of China.”