UCI University of California, Irvine

July 20, 2021

To: Ken Sembach; STScI, Director
John Mather; GSFC, JWST Senior Project Scientist
Neill Reid; STScI, Science Mission Office

Re: GO Funding Levels for JWST

During the June 2021 JSTUC meeting, we were informed about the large mismatch in requested Cycle 1 GO funding (~$90M) and likely available funding (~$30M) to support Cycle 1 science. This letter is intended to summarize our initial actions and to articulate a serious concern: **without a plan for increased support for GO science, in Cycle 1 and beyond, the ultimate scientific goals of this limited-life mission will be in jeopardy.**

NASA's Great Observatories program has had a transformative impact on our understanding of the universe in part because of NASA's practice of maximizing scientific impact via direct funding of the General Observer (GO) investigators to do the proposed science. Indeed, these observatories have publication and impact factors that dwarf most modern observatories; it is widely recognized that this is due in no small part to the funding policy. *HST* has been supported recently at ~$30M/year for GO/AR funding. *JWST* is a far more complex telescope, and it will have 2-3 times more observing time per year than *HST*; even seasoned *Hubble* or *Spitzer* observers will face a significant learning curve during the crucial first-year observations. While *JWST* holds the potential for an even more profound impact on our understanding of the cosmos than *Hubble*, the mission will fall short without appropriate GO support. We note that our predecessor committee (the JSTAC, in a letter dated May 22, 2015) provided a detailed assessment of the expected GO funding that would be needed to support *JWST* Cycle 1 GO programs towards scientific fruition and concluded that $60M/year was an appropriate target. Given this, we were somewhat shocked to see that the available funding was roughly half of this well-researched, though admittedly preliminary, target number.

Upon hearing of the discrepancy in funding requested to that available, the JSTUC immediately worked with STScI to set up a *Cycle 1 Grants Support Task Force*, which includes three members of the JSTUC. The Task Force has been charged with reviewing a representative subset of budget proposals and providing the STScI Director an assessment of the level of funding (irrespective of likely funding limits) that would be appropriate to support Cycle 1 science for those programs, and giving advice on implementing funding within the available JWST Cycle 1 grants budget. The Task Force is now in place and has made progress towards its aims, which will also include developing recommendations on factors that could/should be used in developing a model to estimate not-to-exceed budget allocations for the Cycle 1 programs, and in providing guidelines for budget submission in future cycles.

While we wait to hear from the task force, we are writing this letter to amplify significant concerns within the astronomical community about the mismatch between available funding and what will be needed to deliver the science goals and data products during this crucial first cycle of JWST GO operations.

An important aspect of the shortfall in funding relates to *NASA's broad goal to improve diversity and equity* in science, and astrophysics in particular. Compared to historical averages for Great Observatories, a larger fraction of accepted *JWST* Cycle 1 programs are led by women, under-represented minorities, junior scientists, and those not at R1 institutions. While this is great news for the field, we fear that the lack of required GO funding has the potential to bias the science output of the telescope towards a subset of the most privileged PIs. Specifically, senior scientists (who are overwhelmingly white men) and those at wealthy institutions are more likely to have access to auxiliary resources to help them do their proposed science. Most other scientists will be forced to look on without adequate support. By hindering the empowerment of competitively-selected talent broadly distributed in the community, we are in danger of having a narrowed scientific perspective, which is far from the ideal.

With the above paragraphs as motivation, we look forward to working with NASA and STScI to ensure that *JWST* science can be supported at a level that ensures mission success and the vitality of the field moving forward.

Sincerely Yours,

James Bullock (UC Irvine) on behalf of the JSTUC

Kat Barger (Texas Christian University)
Natalie Batalha (UC Santa Cruz)
Saida Caballero-Nieves (Florida Institute of Technology)
Stephane Charlot (Institute d'Astrophysics, Paris)
Duncan Farrah (University of Hawaii)
Alistair Glasse (Royal Observatory, Edinburgh)
Tom Greene (NASA-Ames)
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David Lafreniere (University de Montreal)
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