Directorate for Mathematical and Physical Sciences
National Science Foundation

Response to the Committee of Visitors Report
Division of Physics
(FY 2019-2022)

The Directorate for Mathematical and Physical Sciences (MPS) and the Division of Physics (PHY) thank the Committee of Visitors (COV) for their time, effort, and careful assessment of the review processes and portfolio management in PHY during fiscal years 2019-2022. PHY is extremely pleased by the vote of confidence expressed in the COV report for the Division staff and the work of the Division. We also appreciate the COV's recommendations and suggestions that will help the Division serve the community even better. The following is a recognition of the two COV recommendations together with specific actions that the Division will take to respond to those recommendations. For those actions that may need longer-term attention to fully mature, responses will be evaluated on a yearly basis to determine their effectiveness and impact, with results reported in annual updates.

3: RECOMMENDATION: We recommend continued reinforcement of the intended broad meaning of "broader impacts" and of the importance of attention to it with the ad-hoc reviewers, in an appropriate balance with the reviews of intellectual merit

The Division will continue to emphasize the importance of the broader impacts components of a proposal and continue to instruct all reviewers about the intended meaning and broad range of activities that principal investigators may include to address this essential aspect of an NSF proposal. Program Director instructions to reviewers at the start of a panel meeting include a discussion of the two NSF merit review criteria and the importance of fully addressing both intellectual merit and broader impact criteria in their reviews. Guidance from the Program Directors as well as the full panel discussions have helped reviewers better understand the range of broader impact activities and ensure appropriate attention is paid to broader impacts in the panel summaries. This COV recommendation focuses on instructions to ad-hoc reviewers, who work independently and without the verbal instructions provided to a panel by the program directors or discussions with other reviewers. In consultation with the NSF Office of Integrative Activities (OIA) the Division will carefully review and augment the written instructions we send to ad-hoc reviewers to better define this criterion and to reinforce the importance of thoroughly evaluating the broader impacts components of the proposal.

11: RECOMMENDATION: In alignment with NSF goal #2, we encourage the Division leadership to consider avenues for more coherence between IAP's portfolio and efforts within the science program areas to support the fostering of an inclusive community at all levels of participation, as well as to better align the language describing IAP with the initiatives it supports.

We appreciate this recommendation. The first step that the Division will take to address this is to modify the language of the current Integrative Activities in Physics (IAP) Program Description to remove the incorrect impression given by the current statement that IAP accepts proposals "*that do not easily fall within any of the other primary disciplinary areas*." The role of the IAP program is to coordinate and integrate those aspects of the Division portfolio that are not specific to any one scientific subarea but that are equally shared by all. For example, IAP manages the REU sites. These provide research opportunities to students in all subfields in PHY and directly implement the Physics

Division vision of utilizing research as the best platform for educating and developing the next generation of the STEM workforce. Physics participation in the NSF-wide MRI program is coordinated through IAP, with the IAP Program Director working with all Program Directors in the Division to review and make award recommendations. Oversight of centers like the KITP, whose programs cover the gamut of physics, resides in IAP, and Program Directors from all the subareas of Physics in the Division are included in reviewing and evaluating the progress of these awards. We will update the IAP Program Description to ensure that it accurately describes the purpose of the program.

The responsibility to enhance diversity, equity, and inclusion within the physics community is shared by all programs within the division. Managing targeted efforts to address these issues through the IAP program has seemed appropriate. We have managed programs such as the AGEP-GRS and launched the new PHY-GRS programs through the IAP program. Going forward these programs will be transitioned to a co-funding model that gives more responsibility to the other subprograms. In this way the importance and responsibility for addressing diversity and inclusion in evaluating and making awards will be more directly woven through all programs in the Division.

In addition to these Division-wide recommendations, the various subgroup reports also included some recommendations that grew out of discussions at the program level. We have noted these, and they will be taken into consideration as we work with the separate programs to address their planning for the next years.

We appreciate the responses of the COV to the additional questions raised by the Division and the additional observations and suggestions highlighted in the COV report. These include:

(a) support for the Division practice of ensuring that at least 50% of the funding portfolio is directed toward the research program as opposed to research infrastructure and facility maintenance and operations (M&O);
(b) support for the simplified Review Analysis as providing sufficient information to justify the final recommendation;
(c) support for the flexibility of allowing each program to determine the optimum duration of awards;
(d) support for the practice of encouraging Program Director collaborations within and outside the Division; and
(e) support for the Division's participation in NSF-wide initiatives and the degree to which this has strengthened Physics Division efforts.

The Division will continue all these practices, taking into account the possibilities for improvement included in the suggestions.

The COV discussed, but did not reach a conclusion, on the possibility of engaging the community more broadly in reviews of Division practices. The COV process is the recognized and sanctioned mechanism for providing recommendations on the fairness and effectiveness of the activities undertaken by all organizations within NSF, and we ascribe to it wholeheartedly. The process has a long and effective history of providing thorough and helpful reviews of the Division, as confirmed by our own experience. As a result of this intense periodic COV scrutiny the Division has continued to improve.

We thank all the members of the subcommittee for their time and efforts to this end and want to reassure the community that we will pay close attention to all the comments in the report, including those not specifically called out in this response.