1. Academic Excellence

We commend the Physics Department for their excellence in research and education. The Department has historically been ranked among the top physics departments in the country and is usually the highest ranked department at a public institution. The Physics Department is educating an extraordinary number of physicists at the undergraduate and graduate levels and plays a critical role in the education of the next generation of the physics workforce. The leadership from the current department chair is excellent and his efforts appear to be well-supported by the Department.

Despite its outstanding reputation, our External Review Committee (ERC) was rather surprised that a vision to maintain this academic excellence in research was not communicated clearly to the ERC in the self-study, other written materials, or at the site visit. While Section 3b of the self-study presents scientific opportunities at a high level, there was little analysis of the size and reputation of the various groups and specifically what the Department's vision is to maintain its strengths and build in new areas over the next decade. This could mean making deliberate choices about subfields. The self-study also lacked cohesive descriptions of cross-disciplinary opportunities, and in particular the proposed quantum initiative, which seems to the ERC to be a potential opportunity given Berkeley's strengths in physics, engineering, and computer sciences. Issues that would have been useful to address are, for example, how the Department can best leverage Berkeley's strengths in computational and mathematical sciences and engineering, chemistry, and biology, including scientific opportunities and potential for joint hires. We recommend that this be implemented for future review committees, and that the Department chair present the intellectual vision to the ERC in a form that allows for discussion and feedback.

2. Climate

The climate in the department, especially for women faculty, is the most significant issue identified by the ERC. A very well-attended meeting with women faculty, including those with 0% FTE appointments in physics, brought many issues to light. It is extremely troubling to the ERC that the women faculty uniformly (to the last individual) reported that, for them, they feel the Department climate is 'toxic,' 'broken', or 'dysfunctional'. In contrast, the male faculty generally (although not uniformly) view the Department as collegial. Multiple mid-career women said that they have had outside offers and would have left were they not tied to the Bay Area for family reasons. Senior women faculty have chosen to retire due in part to the poor climate. Women faculty with joint appointments with other departments note that their experiences in Physics have been generally negative, and contrast starkly with the supportive environments and interactions in their other departments. Women faculty expressed concerns that because of the attitudes held by numerous male colleagues, incoming junior women would not receive the support they need to succeed and could have

trouble with promotion as a direct result of the climate, and the lack of senior mentors and role models.

The poor climate for women faculty appears to stem from multiple factors. One significant contributor is the faculty hiring process and associated long standing structural issues (see below). In the view of the ERC, the climate issue, if not proactively addressed, will have serious consequences for recruitment and retention, especially women and underrepresented minorities. It will also result directly in erosion of research excellence by limiting the pool from which the Department can draw talent, and it will undermine graduate recruiting.

Multiple faculty expressed the sentiment that the general departmental culture (not specific to women) has been slowly eroding. Manifestations include the poor attendance at colloquia and faculty meetings, lack of faculty engagement as a group in strategic planning – e.g. subgroup presentations not being attended by faculty outside of individuals' specialties; off-campus departmental retreats no longer taking place; and discourse at faculty meetings described by minoritized groups as disrespectful. While the biggest concern is at the faculty level, the issues around faculty collegiality extend to the graduate student population and teaching staff. Graduate students feel that their concerns are not taken seriously. Some teaching staff do not feel valued as educators by the faculty.

The lack of regular interaction across different subfields of physics is another concern expressed by numerous individuals. Exposure to other fields is important to development as a researcher. Junior faculty, postdocs and researchers especially noted to the ERC that they interact solely within their specialty. This issue could be addressed by having regular Department events such as lunches for all the faculty, faculty retreats, and cross-group research seminars to "stir the pot."

The climate and quality of life of the staff is another concern. The reallocation of staff support from the Department to central services has resulted directly in a dramatic increase in the workload of departmental staff, especially those who support student services. It has also led to staff retention issues since advancement in career tracks generally requires moving to a central office or an office in another department. The staff reports very long work hours, and an inability to respond to faculty and student needs in a timely manner. Staff feel a great sense of dedication and loyalty to the Department, so the inability to meet needs is especially disheartening. These issues are discussed further in Section 4.

We recommend that the Department reform faculty hiring practices as discussed in Section 5 below. It should also consider conducting listening sessions, perhaps professionally moderated, to rebuild communications among faculty, and in particular ensure that concerns of the women faculty are heard and respected. Many senior male faculty appear to be unaware of the high degree of unhappiness among their female colleagues. We recommend that the Department reinstitute or increase social functions such as holiday parties, award ceremonies, and staff appreciation events that bring faculty, students, and staff together. The Department should encourage attendance at the colloquium, and specifically move the colloquium to an earlier time so that faculty, staff and students with children in daycare or school can attend. Having lunches and off-site faculty retreats to discuss strategic planning, department policies and to improve intergroup communication would be another positive step.

We conclude by noting that culture and climate are not easy to change, and lasting improvement takes commitment, time, leadership, and sustained effort. Climate issues for women and minoritized groups are unfortunately not uncommon in physics. The document on best practices published by the American Physical Society (https://www.aps.org/programs/women/reports/cswppractices/index.cfm) provides some additional helpful ideas.

3. Facilities & Infrastructure

The Physics Department suffers from aging buildings and infrastructure which are insufficient to support the demands of state-of-the-art experimental physics. This is a particular problem for fields like Atomic, Molecular and Optical Physics and Quantum Sciences which demand a high degree of humidity control and vibration, thermal, electrical, and seismic stability. While laboratories in these fields have high up-front costs, these areas generally enjoy significant Federal support and in the long term return significant overhead. Investments for lab renovations and a new building or building extension are necessary if Berkeley is to maintain a top Physics Department.

Some space in the Birge building exists that can be renovated for new hires, but it is insufficient to meet future needs. In addition, faculty consistently expressed concern about excessive costs at UC Berkeley for lab renovation. Faculty had specific comparisons indicating that the associated costs could be as much as five times higher than at comparable universities such as Stanford. There was widespread concern that the campus' centralized organization needlessly added costs to renovation, both from "taxation" and from inefficiency. There was also concern that the centralized facilities services were not very interested in the fundamental academic and research missions of the University.

In addition to the pressing need for new labs, existing infrastructure requires regular maintenance and expert support that is not being provided by the University. This issue affects everyone, from students to instructors and staff. One prominent faculty member reports having laboratory infrastructure failures about four times per year, each of which costs on average 1-2 weeks of lost research time. This directly affects productivity and negatively impacts graduate students and early career researchers' progress. The loss translated into dollars is significant, and it leads to the general impression that Berkeley struggles to support ambitious scientific research. This directly affects faculty recruitment and retention.

We recommend that Berkeley should conduct, at the University level, an external review of its facilities group. This should be comprehensive and should look at the trades between local and centralized support, how the very high facilities 'taxes' passed on to departments are assessed, and where practices can be improved for greater efficiency and to provide better support. Metrics should include comparisons of renovation and building costs with peer institutions.

We recommend that a comprehensive space and infrastructure plan should be developed for physics that supports the needs of current and projected experimental physics groups. This should be done as a collaboration among the Department facilities and the central administration. The plan should be followed up by an implementation plan for renewal and maintenance.

4. Campus Bureaucracy

Various problems at the campus level are significantly impeding excellence in the Department. Besides the high facilities costs described in the previous section, these problems include needlessly complicated and time-consuming bureaucracy, and needless delays at the higher levels of review for merits and promotions. These problems hurt faculty morale, impede productivity, and can result in retention issues. They incur large costs which may be hidden from the point of view of higher levels. Here we present two of these issues in more detail.

The faculty and staff are uniformly highly dissatisfied with centralization of services such as human resources, purchasing, reimbursements, IT support, and grant administration. Mixed in with concerns about centralization was the frustration that the forms and procedures for interacting with the bureaucracy were extremely inefficient--such as having to repeatedly fill out long forms for each member of a group, and requiring signoffs at the Dean's level for fairly routine expenditures. Faculty reported many hours of time wasted interacting with the bureaucracy. This mode of administration represents a significant hidden cost to centralization and hurts morale and importantly influences retention and hiring. Staff reported having very time consuming interactions with central IT support where the staff was repeatedly required to try fixes and then get back to IT when the suggested fixes failed.

There was frequent concern about delays in the upper level of the Academic Personnel process for merits and promotions. Faculty reported cases where they were preparing their next merit case while still not having heard back from the administration about the previous action. Since junior faculty are sometimes financially stressed due to the high cost of living, the lack of a merit increase was very frustrating, despite the knowledge that eventually the pay increase was likely to arrive. To our knowledge, this backlog seems much worse at Berkeley than at any other UC campus. While we understand that Berkeley chooses to do some things differently with its Budget Committee than the other campuses, such as allocating FTE in addition to advising on hiring, merits, and promotions, the current backlog is having a significant impact on morale. The campus should consider how modest adjustments of their procedures, such as delegating authority to Deans for some minor merit steps, could have advantages that outweigh the disadvantages.

The campus should encourage interdisciplinary institutes, where appropriate. For example, Berkeley has outstanding strength in each of the individual departments (including Physics) that would make up an interdisciplinary Quantum Sciences Institute, as well as housing the Simons Institute for the Theory of Computing. Such an organization could easily become a world leader in this forefront area of science.

5. Faculty Hiring

As a top-ranked physics department Berkeley is a destination for many of the best young researchers world-wide. However, the Department has failed to draw from the entire talent pool as evidenced by the fact that over the last decades it has hired very few women, and now has only 3.5 FTEs out of 48 ladder faculty, a percentage of 7% that is surprisingly low,

and significantly below its peers (24% at Caltech and UIUC, and 21% at Irvine and U. Chicago for example). The view of the ERC is that this results directly from flaws and biases in the hiring process. Not only do best practices as recommended by campus appear not to be followed, but comments about women candidates made in faculty meetings, as relayed to the ERC, are clearly unacceptable in nature. This has led to a very significant erosion in the department climate, and the uniform alienation of the women faculty.

The Department, largely spearheaded by women faculty, has made progress by implementing a "Rising Stars" workshop that identified several top female candidates. Thanks to the hard work of some faculty and strongly supported by the Department chair this has led to the successful recruitment of an excellent young woman this year, and there is hope that the Department may be able to recruit two more. However, this progress must be sustained, and this cannot depend on a single individual (the Chair), but must be viewed as a collective responsibility.

We recommend that for each search committee, the Dean appoint an experienced external senior member from another department to help guide the physics hiring process and ensure that campus best practices are followed. While a DEI representative from the Department has been appointed to each hiring committee, this does not appear to have been effective

6. Faculty Mentoring, Teaching and Service

The faculty, from junior to senior, lead research operations that are often large and complex. The expectations for faculty teaching and service are very reasonable, giving the faculty time to pursue research, and they are in keeping with other major Physics Departments nationwide.

Across UC Berkeley, teaching and service are critical to promotion as part of educational mission and shared governance. However, based on communications from individual faculty there is evidence that stringent rubrics may be used inconsistently, leading to potential equity issues in faculty advancement.

Mentoring of junior faculty plays an important role in their professional development. While the department has a system where a mentor is assigned to each junior faculty member, the quality of the mentoring is inconsistent and dependent on the individuals. Issues that came up in discussion with junior faculty are inconsistent communication concerning promotion, and inadequacies in mentoring around establishing their research careers. The junior faculty all voiced requests for more structured mentoring, stating either that they were never assigned a mentor, never spoke to their formal mentor, or did not feel comfortable speaking with their formally assigned mentor about such matters. Junior faculty indicated that they rarely interact with people outside their field. There was uniform agreement among the junior faculty that they would like to meet with the department chair annually. Implementation of the current mentoring system needs to be improved.

The Department should establish uniform expectations. Mentors should advise their mentees on what is expected for promotion to tenure, on how to write grant proposals and research papers that successfully communicate the science when needed, and on how to give successful research talks and colloquia. These tasks could, for example, involve mentors

reading mentees proposals and papers to suggest improvements. Best practices at other institutions involve a combination of formal and informal processes. In many departments there is a formal tracking committee, comprised of members inside and outside of the mentee's field. This committee provides a short annual report to the department chair based on meetings with the faculty member and a review of the CV. This is followed up with a one-to-one meeting between the chair and the junior faculty member.

Beyond the concerns raised by junior faculty, the ERC notes that mentoring is important at all career stages to prepare faculty for the next levels of leadership, including in setting a collegial tone of the Department. It is the committee's perception that this culture is currently not present within the Physics Department. Efforts should be undertaken by all faculty, especially at the senior level, to carefully consider their professional practices, to possibly include seeking out training on culturally aware mentoring and leadership practices in order to improve the departmental climate.

7. Support Staff

We commend the Department support staff for their exceptional talent and diligence. They keep the Department functioning in a very challenging environment. Some staff members report working ten to twelve hours a day, six to seven days a week. There is currently an open position among the student advisors, which is adding to the workload. The staff experienced significant turnover, partly because of the limited promotion opportunities in the Department, with staff having to move to other departments at Berkeley. The recent student/faculty strife associated with unionization contributed to one departure. The non-degree revenue generating programs (BPIE, BETA), while bringing in important funding to the department, also increase the staff workload. The staff burden would be worse except for substantial voluntary work by a retired staff member.

The Department and the University need to work to improve the workload issues for the staff. The staff is heavily involved in interacting with the campus bureaucracy; improving that should be a top priority for the campus, and long term, its improvement will ease the burden on Department staff.

8. Teaching Staff

The Department employs a large number of staff to lecture and run teaching laboratories. This includes a number of "Unit 18" lecturers who are passionate and dedicated to the Department. In particular, the current composition of the Departmental composition is such that many faculty are on reduced teaching load and a large number of Unit 18 lecturers are needed. All of these teaching staff play essential roles in the Department.

We recommend that the Department take significant steps to better integrate all teaching staff into matters of undergraduate and graduate education. These staff currently do not feel invited to participate in departmental teaching matters. It is the opinion of the ERC that Individuals who are teaching courses should participate in decisions regarding curriculum, including choice of textbooks, pedagogy and graduate student instructor training and management. Teaching staff should be invited to serve on committees pertinent to their interests and expertise, and mechanisms to compensate such work should be explored.

These staff should have opportunities for professional development, as this will benefit undergraduate education in physics.

The UC Berkeley allocation of FTEs appears to discourage the hiring of tenure track teaching faculty (i.e., lecturers with security of employment and teaching professors), in favor of temporary lecturers, because temporary lecturers do not count against the Department's FTE quota. We recommend a holistic evaluation of the teaching and education needs of the Physics department and whether hiring tenure track teaching faculty may be beneficial.

As is probably no surprise, the compensation for the unit 18 lecturers in particular is low and contributes to low morale.

9. Research staff and Postdocs

The ERC found a general level of satisfaction among the postdocs. We found no issues in regard to mentoring, or concerns about interactions with other research groups within the Department. The predominant complaints were about computational infrastructure, complex and ineffective visa processes, and time consuming and frustrating HR processes.

10. Graduate Program

The Berkeley graduate program in physics is widely considered to be one of the very best in the country. It regularly competes with premier private institutions for the strongest students, and it has produced many graduates who have gone on to be leaders in their fields. We laud the department for its strong role in attracting and educating the next generation of physicists.

Nonetheless, we became aware, through meeting with graduate students and faculty, of problems within the graduate program. One issue concerns communication with the students about what is expected of them. It is very important that both students and research advisors understand the role of the qualifying examination, or "qual," in the education of research students. The qual exam is not primarily a test of students abilities, but rather a critical examination of their proposed research and their preparation to carry it out, and as such it is vital that the examination occur early in the students research experience. It behooves the faculty to enforce the existing rules on how long students can continue in the program without passing the qual.

The Department has previously relied on having courses taught by LBNL staff, e.g., in nuclear physics. This has been an important benefit to the department, tied to its close association with the lab. The cessation of this practice, due to new rules about their compensation, has led to inadequate coverage of specialty courses, with a concomitant decrease in student morale.

To its credit the Department has a system of rotation for students not committed to a research group to enable them to experience different research environments before making a final choice. The students however do not feel that the expectations of the rotation system and its rules are adequately defined. Theory students in particular expressed the concern that they often are not sure at which point they formally become members of a group and

have an advisor, and especially important, when they are not accepted in a group. The research advisors need to communicate more effectively with the students. The communication issues are exacerbated by the lack of staff.

In summary, our recommendations are: to enforce rules about the qual exam; increase the regular and especially in-person communication with graduate students; make advisors of theory students formally accept or decline students after a well defined and codified trial period which has been communicated to the students; and reinforce staff support by filling open positions.

We also recommend that the Department regularly review the graduate curriculum and program of study, to achieve a balance between what the students need for their own immediate development in their particular fields and the need to give the students a broad overview of modern physics research.

Consistent with concerns about climate at the faculty level, graduate students expressed that the above concerns had been voiced, but they felt had not been heard. Improved communication to graduate students of clear departmental expectations may be a simple step to improved relations.

11. Undergraduate Program

We laud the Department for the satisfaction and success of its undergraduate program. The Department educates an extremely large number of students and is committed to educating a diverse undergraduate population. In particular, the Department attracts a high number of transfer students who successfully major in physics. The Department has many excellent ideas for improving the undergraduate physics education that reflect best practices in the field for broadening representation. One example is the efforts to build close ties between the Department and the undergraduate Student Learning Center to recommend and vet undergraduate tutors that lead to more success in introductory courses. However, the Department lacks adequate staffing resources for their successful implementation. The Physics major is a difficult one and we did not find any significant concerns that negatively impact student satisfaction or education that could be addressed at the departmental level.

Finally, we commend the department on the non-degree revenue generating programs, BPIE (which brings in international undergraduates for one or two semesters) and BETA (which brings visiting graduate students). The campus should not rely on the significant revenue from these programs to make up for shortfalls in the campus teaching budget; these activities involve extra work by the department and their revenue should be retained by the department as much as possible.

We recommend that the Department evaluate the curricular requirements for the major and be provided support to expand the number of tracks offered. We found sources of dissatisfaction to include the inflexibility of the major, and that it discourages double majors in other STEM disciplines. Numerous studies have found that such tracks can broaden representation of those who choose to participate in physics education, and emphasize its interface with engineering and scientific disciplines. This could include tracks with fewer course requirements to more easily allow for double majors, tracks with emphasis on

engineering, biology, astronomy, geology, space sciences, computer science and statistics, and math, to allow students to focus their physics education in specific domains.

We also recommend that the Department learn best practices from other departments, both in STEM fields at Berkeley and physics departments elsewhere about mechanisms to establish strong communication with incoming first year students (e.g. via Slack or Discord channels) to welcome them to the major. This would serve as a means to help advise students on curricular questions, and build community and communication within the undergraduate population, relieving some pressure on the staff. Bolstered communications with the undergraduate student population would also assist in ensuring that they understand the departmental community values of inclusion and equity. The undergrads we spoke with indicated that the faculty and staff set a welcoming tone, but that climate issues do arise in their peer groups.

Representation of women and URM students in the Physics major is of concern, as these populations are underrepresented compared to the Berkeley undergraduate population. Individuals in the Department seem interested in addressing this, but these activities require significant effort (especially from staff). We recommend that the Department assess more quantitatively representation at matriculation, after students take an Introductory Physics course, and then upon graduation to learn where to focus efforts.

The Department educates a number of non-physics students in “Common Good” classes). We recommend that the Department track student satisfaction in these courses, as our committee did not receive any information about this.

We recommend enhancing lab infrastructure to accommodate more students. We repeatedly heard that timely registration into lab-intensive courses required for the major was a concern, and that some students could not take these until their senior year.

RICHARD M ALLEN
DIRECTOR, BERKELEY SEISMOLOGICAL LABORATORY
CLASS OF 1954 ENDOWED PROFESSOR, DEPT EARTH & PLANETARY SCIENCE
307 McCONE HALL, MC4767
BERKELEY, CALIFORNIA 94720

TELEPHONE (510) 642 1275
EMAIL rallen@berkeley.edu
WEB http://rallen.berkeley.edu/

To: The Academic Senate
From: Richard Allen, Academic Senate Liaison
Date: May 17, 2024

External Review of the UC Berkeley Physics Department

The review process

I participated in the external review process for the Physics Department as the Academic Senate Liaison. The review was performed by an external group of four senior faculty drawn from premier physics departments at both public and private institutions including a sister UC. The review consisted of two full days of meetings and tours within the department on April 10 and 11, 2024, which I also attended in full. Chair Irfan Siddiqi and MSO Roia Ferrazares are to be thanked for provided a thorough and frank self-assessment and were candid and transparent as they answered our questions during the visit which aided in the review immensely. The ERC is to be commended on their thoughtful and thorough review report which provides a rigorous assessment of the current state of the department and useful suggestions for improvements. I fully concur with their report.

I have one suggestion for improvement in the review process. I suggest extending the available time for the PROC exit meeting at the conclusion of the review. A one hour meeting for the ERC to summarize their findings, and then for all 16 representatives of the campus administration and faculty senate committees to each comment and/or ask a question is simply insufficient. Given the depth of understanding that the ERC possesses at this point in the review process, and their ability to provide context and suggestions drawn from other institutions, we should be providing the time for more substantive back and forth between the ERC and PROC.

Below I highlight some of the key elements of the review findings and provide additional Berkeley context.

Excellence in Physics

The Department of Physics is one of the best in the world. Its faculty continue to provide a stream of Nobel Prizes that elevates the entire campus. The department graduates a large cohort of both undergraduate and graduate students thereby playing a key role in educating the next generation of physicists. The undergraduate program, with about 120 graduates per year, is the largest in the country. In addition, the department graduates a high fraction of transfer students, more than the campus average, which is a testament to the flexibility that their undergraduate curriculum provides. At the graduate level, the program is considered to be one of the best in the country competing for the best students who go on to be leaders in the field. The staff are fully committed to the department working long hours to fulfil the mission and potential of the department.

The department also does an excellent job of leveraging resources across and around the campus. There are deep ties with Lawrence Berkeley Lab (LBNL) that supports many faculty research programs with funding and lab space up at LBNL. LBNL also provides opportunities for students with research groups beyond those of the faculty. Physics faculty hold joint appointments in MCB, IB, Math, Chemistry and the Space Sciences

Lab which is a testament to the important role that the Physics department plays in the success of many other department on campus.

Department support, campus centralization, burdensome bureaucracy

A sentiment that was common through every meeting with faculty and staff was one of frustration and exhaustion at the level of staff support in the department, the move towards centralization of services (resulting in loss of staff in the department, and tepid relationships with centralized support staff), and what seems to be unnecessarily burdensome bureaucracy (endless long forms). This is having a negative effect on the climate in the department for everyone.

There are limited staff within the department, and in order to progress professionally, staff need to move on to other units. At the same time, the staff clearly care passionately about the success of the students in the department and the success of the faculty research efforts, often working long hours, weekends, and even returning post-retirement as a volunteer to support this mission. The move towards centralization of many services including research administration, HR, purchasing etc. has taken people out of the department and away from the central mission of campus: teaching and research. The sentiment is that staff in the centralized units often don't see the students or the research and simply don't seem to care.

The process of passing/tasking work from faculty or staff in the department to these centralized services has developed into a myriad of forms and an array of generic email addresses. Faculty cannot keep track of which forms/processes are needed to make a hire or a purchase. They cannot form relationships with the people that support them; the kinds of relationships that facilitate collaborative problem solving when needed. Department staff are being asked to complete more and more forms essentially pushing the work that was moved to these central units back into the departments (from the perspective of the department staff). Both faculty and staff expressed the sentiment that they want to spend more time with their students and less with their computers.

At multiple times it was suggested that these centralized units should also undergo external reviews. This would include administrative units and facilities, which should be reviewed periodically just as departments are. The review panel should include both department faculty and staff (the customers), and also other "sister" high performing administrative/facility units.

Women in Physics

The number of women on the Physics Faculty is very small and it is declining. With the retirement of two senior female faculty there will be just 3.5 FTE out of 48. Only one female faculty member is 100% in Physics, and the rest were hired in other departments and then given partial appointments in Physics. Other premier Physics Departments have a much higher ratio of women as documented in the ERC report.

The meeting with female and URM faculty was incredibly well attended, including 0% appointments, and the sentiment was uniformly that there is a serious problem within the department in terms of attitude towards women in physics. It was noted that this was an issue with both some senior and some junior faculty. There was also a desire for much greater collegiality across the department, with more opportunities to engage with faculty across the diversity of research groups. Many of the faculty have joint appointments in other departments and described this issue as being unique to Physics.

This issue was largely absent from the discussions and perspectives of other faculty members. In some cases faculty seemed to be unaware of any issue, in others there was perhaps a reluctance to talk about it. When the ERC asked a group of the faculty about collegiality at dinner one evening, one faculty member replied that the department was very collegial to which a second faculty member sat next to him responded with confusion as to whether they were both part of the same department.

There are, of course, notable exceptions. Chair Siddiqi and others in the department are tackling this issue head on. The faculty search process as executed in years past is one area of concern. A newly reformed process being applied for the first time in the current hiring cycle, appears to be working well. These reforms

must be sustained, and broader efforts to improve communications and collegiality across all members of the department are needed. Broad recognition of this challenge by all members of the faculty is a key first step.

Faculty mentoring was identified as being just as important as the faculty hiring process. All junior faculty expressed a desire for better mentoring, although the perspectives on what that means were different with some preferring a more or less formal process. Several suggested an annual check-in with the department chair. Others wanted more collegiality, and desired more opportunities to interact socially with faculty across the department.

Graduate program

The meeting with the graduate students was also very well attended. The graduate students were well aware that they were fortunate to have been admitted to a top program. At the same time, they had many suggestions for possible improvements to the program.

A common sentiment was that students felt adrift within the program. This seems to be related to the process of finding and joining a research group. Several students suggested a more formal rotation process to try out different research groups would be helpful. This process exists, but many students reported that it was unclear when they had successfully joined a group, or perhaps more importantly when the group/faculty lead had rejected them. A fixed duration (3 months was suggested) to each rotation was proposed, this would facilitate clearer communication as to whether a students was in or out of a group.

Likewise, the expectations for the qualifying exam were unclear. Multiple students reported taking the qualifying exam shortly before handing in their thesis, rather than after 2 or 3 years as an "entry" exam into the PhD dissertation process. The rules for this exam were relaxed through the COVID period, but there was a desire to see clearer rules and expectations for the program and enforcement of these rules to ensure an even playing field for all students.

In summary, there is no question that Berkeley Physics is one of the best programs in the world. This is thanks to the spectacular faculty, staff and students. Some of the challenges that the department faces stem from limited campus resources, others have perhaps been exacerbated by the isolation of COVID. The department is fortunate to have a very capable Chair and MSO who are already tackling these challenges head on, but campus must also recognize and respond to their needs.

Sincerely,

Richard Allen
Director, Berkeley Seismological Laboratory
Class of 1954 Endowed Professor, Dept. Earth and Planetary Science