

2024 US Belle II Climate Survey Report
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1 Introduction

Climate surveys within experimental collaborations are conducted in the context of DEI because, although the working environment in physics can be challenging for everyone, individuals from underrepresented groups often experience additional challenges from bias incidents, harassment, or lack of acknowledgment for their efforts. The added stress is considered to contribute to disproportionate attrition among these groups. Understanding and mitigating these challenges serves to improve the working environment and productivity for all in the community. The US Belle II Standing DEI Committee has coordinated the first such survey within US Belle II.

2 Survey creation and deployment

Three US Belle II members were recruited to serve as the team tasked with creating and deploying a climate survey within US Belle II:

- Lucien Cremaldi, University of Mississippi
- Renu Garg, Carnegie Mellon University
- Milind Purohit, University of South Carolina

The team began work in February 2024, gathering questions from a variety of sources and soliciting feedback from the DEI committee. Informed by the experiences of other groups with such surveys, the team opted for a relatively brief survey to elicit a representative response and capture the most important aspects of the climate in US Belle II. The questions were largely composed with our more junior members (students and postdocs) in mind, as negative climate is more damaging in these ranks. The final survey is appended as the last section of this report.

The survey was deployed in July on the Qualtrics platform and was open for four weeks. All 108 individuals identified in the Belle II member database as being at US institutions were asked to complete it. These included faculty, postdocs, graduate and undergraduate students, and technical staff. Several reminders were sent during the survey period, and 78 individuals completed the survey.

3 Responses and Analysis

3.1 Demographics

Responses on career stage and race/ethnicity are shown in Table 1. Asked about disability, two responded affirmatively, and one chose not to respond. 83% (65/78) reported having worked with Belle II for at least two years. The survey did not include a question about gender or sexuality, an oversight.

	All	White	Asian	Black/ Hispanic	Middle Eastern	Multi- ethnic	Chose not to respond
Tenured faculty/staff	25	14	6	1	-	-	4
Untenured faculty	2	1	1	-	-	-	-
Postdoc	18	6	9	1	1	-	1
PhD/MS candidate	23	8	10	1	-	2	2
Undergraduate	4	2	-	1	-	1	-
Technical staff	6	5	1	-	-	-	-
Total	78	36	27	4	1	3	7

Table 1: Responses on role and race/ethnicity

3.2 Professional inclusion

Questions 5 and 6 pertain to professional meaning, opportunities, respect, and inclusion in the context of US Belle II. The overwhelming majority responded positively, with most feeling included and none feeling “definitely excluded.” Given the diversity of structure and personalities across US Belle II institutional groups, this is a very encouraging finding. Two strong negative responses across Q5 appear to be from the same two individuals, neither being a student and one being tenured faculty. Without additional context it is difficult to interpret the faculty response.

Question 9 asked whether respondents felt they are offered equal opportunities, despite “significant differences in background.” Most responded positively, although a significant minority (6/53) checked probably or definitely not. This response is difficult to interpret, given that “difference in background” was not defined, it is unknown how many perceived their backgrounds to be “different” and in what way(s), and perception of opportunity vis-à-vis peers can be particularly subjective.

Somewhat related and more general was Question 19, which probed whether individuals felt they were under scrutiny or received sufficient recognition and support relative to their peers. A few students (4) and senior faculty (2) as well as one technical staff reported feeling under scrutiny. Several postdocs (4) and senior faculty (4) felt that their contributions were undervalued. There was a strong correlation between feeling undervalued and feeling unsupported by colleagues. More than half of these individuals were non-Caucasian.

The response to Question 7, about the frequency of group social gatherings, was somewhat concerning in that 20% of respondents reporting that the group “never” gathers. *Social gatherings serve to enhance professional relationships and are to be encouraged.*

3.3 Conflict and mistreatment

Progress in science at the large scale as well as professional development at the personal scale, depend on robust debate. Comfort expressing disagreement with peers and mentors is important to inclusion and participation in the scientific community. Questions 10 and 11 probed this aspect of respondents’ experience. Most reported comfort with both mentors and peers. Two students and two technical staff expressed some discomfort with mentors. Interestingly, two faculty also reported being uncomfortable with a mentor. Discomfort with peers was reported more frequently among senior faculty (4) than students (1) or postdocs (1). Among these respondents, only one was not Caucasian.

Civil interactions are important for maintaining professional relationships, so those that devolve into perceptions of mistreatment must not be ignored. Parts of Question 14 ask about stress due to mistreatment from students, faculty and staff, and Questions 17 and 18 pertain to downstream effects on professional progress. Five individuals reported stressful student-to-student incidents that occurred “once or twice.” Although seemingly minor, three of the five reported changing their behavior in response. Reports of occasional mistreatment from faculty were more numerous, toward graduate students (8/23), other faculty (5/25), and staff (1/6). Mistreatment from staff was also reported, toward postdocs (1/18), faculty (3/25), and other staff (1/6). The rate of behavior change due to these incidents was low. Two graduate students and three faculty reported changing behaviors despite no reported mistreatment.

Negative interactions with a direct research supervisor are more likely to have professional consequences, and part of Question 14 asks about resulting stress. Nine graduate students and one undergraduate reported at least occasional stress, and two of the graduate students reported high stress. More concerning is that two PhD students reported seriously considering a departure from Belle II or graduate school, correlated with reported mistreatment from the advisor. Two postdocs also reported frequent stress. Two tenured faculty reported stress from advisor mistreatment; it is not clear how this is to be interpreted.

Also included in the survey were several questions regarding the reporting of witnessed or experienced mistreatment, or invalidation of identity, to a higher authority. Question 15 asked whether the respondent had actually reported such incidents. Three individuals, all faculty, responded affirmatively. The fact that no students or postdocs had reported may indicate that they are not familiar with available reporting channels. Many who reported instances of mistreatment responded “N/A” to this question, perhaps indicating they did not consider them to rise to the level of reporting. Question 16 asked respondents their comfort level in reporting, respectively, to advisors, other collaboration faculty, collaboration peers, the Belle II DEI committee, and the US Belle II DEI committee. Most reported

being at least somewhat comfortable with all of them. The most positive response was in reporting to peers, with only 3 being very uncomfortable. Several individuals reported being uncomfortable with all of the suggested parties. *This result suggests that multiple avenues should be open for reporting.*

3.4 Racial or gender-motivated incidents

Negative interactions based on race, ethnicity, or gender have a profound impact on an individual's sense of belonging in a community. Questions 12 and 13 probed whether respondents had experienced or witnessed such incidents, within US Belle II. Eight responded affirmatively on gender/sex, reporting condescension or sexually based remarks. Four responded affirmatively on race/ethnicity, reporting racial hostility or insensitivity. Although this result represents a small fraction of the collaborators, it is important to note that incidents may be under-reported. Moreover, the numbers from underrepresented groups in US Belle II is also small, so the fraction that experience such incidents may well be much larger. *It is suggested that more should be done to raise collaborators' awareness of such incidents (or at least the possibility) and to empower bystanders to make appropriate interventions.*

3.5 Financial stress

Although financial support is not entirely germane to climate, insufficiency can affect well-being, particularly for our junior colleagues and even more so for those from less advantaged backgrounds. Asked in Question 8 about the stipend, one third of graduate students and postdocs reported that their pay is inadequate to cover their needs. Asked to elaborate in a provided text box, these respondents offered a variety of comments, from having to supplement through savings or additional employment (students) to inadequacy for supporting a family (postdocs), and inadequacy of cost-of-living raises in recent years. Question 14 includes a part that asks about stress regarding financial support. The majority of students and postdocs reported at least occasional stress, and several reported frequent stress. We surmise that 14 reports of financial stress from faculty pertain to grants and not personal finances. *Although student and postdoc pay is set through the member institutions and not US Belle II, PI's are urged to advocate in their departments for adequate student support.*

3.6 Workload

Question 14 also inquired about stress from workload and Belle II responsibilities in the US group. A large majority indicated some stress in this area, with about one in six overall reporting frequent or constant stress. While some stress is to be expected in the research environment, additional burdens of stress experienced due to identity-based bias are detrimental, to both the affected individuals and the field.

3.7 Suggestions and comments

In Question 20, respondents were invited to suggest actions to improve the culture. The largest number of responses pertained to making connections, especially among students, within US Belle II. A few suggested providing more support for students (and other new members) to navigate and satisfy the service requirement and to integrate into the larger Belle II physics analysis ecosystem. Other suggestions included involvement of students in discussions of how work toward the PhD prepares them for the job market outside of academia and larger pay increments for postdocs with experience. There were also several statements of affirmation for the US Belle II culture, e.g., “none needed,” “doing great work,” “the current situation is very satisfactory.”

3.8 Conclusions and Recommendations

Demographically, the US Belle II group is predominantly Caucasian and Asian, with less than half of all members, around 40%, being US-born. Auspiciously, a large majority of US Belle II members reported no bias incidents or conflict with other members. Nonetheless, pockets of bias incidents and conflict were reported. No evidence was found that members from underrepresented groups were targeted. However, contentious interactions do happen and can have a lasting effect, particularly where there is a power asymmetry between the parties. Another finding is the widespread lack of community within US Belle II, particularly among students, who tend to interact only with their local group and are not able to travel as much.

It would benefit the US Belle II group to provide activities to promote community among junior members, particularly students. US Belle II should also set up formal avenues for reporting and resolving incidents of bias or mistreatment.

We recommend gatherings across US Belle II institutions for purposes of professional networking and community building with a special focus on students. While the US Belle II Summer Workshop is an excellent event of this type, it occurs only once a year and cannot be attended by all who could benefit. A series of regular live online gatherings would serve to supplement this function. Rather than being a pure presentation format, these should be broadly interactive and on specific topics of interest to a broad range of students. Some of the topics mentioned in the survey, such as preparation for non-academic jobs, dealing with conflict, essential information for new members, and bystander training, could be incorporated into this format.

3.9 Future Surveys

Suggestions and comments on the survey itself were solicited in Questions 21 and 22. Planned changes and additions to future surveys, that will provide improved insights into the internal climate in US Belle II, include collection of additional information (gender/sexual orientation, more detail on bias experiences), wording that applies to members

at all levels (or separately worded questions to separate groups), and questions about interactions with Belle II members outside of the US group.

4 Survey questions

About Respondent

1. At what stage are you in your career (please select the most appropriate response)?

- ☐ Undergraduate student
- ☐ Graduate student
- ☐ Postdoc
- ☐ Junior (nontenured) faculty
- ☐ Tenured faculty/Permanent staff
- ☐ Choose not to respond

2. How many years have you worked on Belle II? (choose the closest)

- ☐ 0-1 year
- ☐ 1-2 years
- ☐ 2-3 years
- ☐ 3-5 years
- ☐ > 5 years

3. Which race or ethnicity best describes you? (Please choose only one)

- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Black non-US
- ☐ Black or African American
- ☐ Hispanic
- ☐ White / Caucasian
- ☐ Multiple ethnicity/ Other (please specify)
- ☐ Middle Eastern or North African
- ☐ Choose not to respond
- ☐ Other

4. Do you identify as an individual with a disability?

- ☐ Yes
- ☐ No
- ☐ Choose not to respond

5. For each of the following, please indicate your level of agreement with each statement:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My work in US Belle II is meaningful to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have the opportunities to contribute professionally in ways that I value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel valued for my work in US Belle II	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am treated with respect in US Belle II	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Do you feel included by your peers in their gatherings where they discuss academic or research problems and / or plans?

- ☐ Definitely not
- ☐ Probably not
- ☐ Might or might not
- ☐ Probably yes
- ☐ Definitely yes
- ☐ No peers at local research meetings

7. Does your US Belle II research group gather socially (e.g. picnics) with other students, post docs, faculty from time to time?

- ☐ Always
- ☐ Most of the time
- ☐ About half the time
- ☐ Sometimes
- ☐ Never

8. All students, trainees, and postdoctoral fellows should be paid a fair and equitable wage sufficient to allow a reasonable standard of living. Please indicate if you feel your stipend is fair and equitable?

- ☐ My stipend is adequate for my needs
- ☐ My stipend is inadequate because (please specify the reason)

- ☐ N/A

9. If you feel your background is significantly different from that of your peers, do you feel that despite this you are accorded equal opportunities?

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Might or might not
- ☐ Probably not
- ☐ Definitely not
- ☐ Don't know
- ☐ N/A

10. Please indicate your level of comfort expressing opposing views with your mentor?

- ☐ Extremely uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Somewhat comfortable
- ☐ Extremely comfortable

11. Please indicate your level of comfort expressing opposing views with your colleagues?

- ☐ Extremely uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Somewhat comfortable
- ☐ Extremely comfortable

12. Have you experienced or witnessed any of the following forms of gender or sexually motivated mistreatment within US Belle II? (mark all that apply)

- ☐ Sexually based remarks or jokes that made you (or another) uncomfortable
- ☐ Your or another person's personal or physical boundaries encroached on
- ☐ Being condescended to, insulted, slighted or overly questioned
- ☐ Opportunities to network were falsely advertised, (e.g., An invitation to a meeting outside the university which was advertised as a chance for discussion of work/ research but which was actually intended as a date)
- ☐ None at all
- ☐ Other

13. Have you experienced or witnessed any of following forms of racial or ethnically motivated behaviors within US Belle II? (mark all that apply)

- ☐ Racial insensitivity
- ☐ False color blindness/invalidating racial or ethnic identity
- ☐ Racial hostility (e.g., had someone express jealousy or hostility surrounding the notion that people of certain race or ethnicity get unfair advantages and benefits due to their race or ethnicity)
- ☐ Denied equitable research opportunities, research funding, or resource access
- ☐ None at all
- ☐ Other

14. Please indicate the frequency to which the following have added stress to your time in US Belle II:

	Constantly	Frequently	Sometimes	Once or twice	Never	N/A
Mistreatment from fellow students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mistreatment from faculty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mistreatment from staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactions with advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall workload	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial Support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. If you ever witnessed/experienced an instance(s) of mistreatment or invalidation of identity, please indicate whether you reported it to appropriate channels?

- ☐ Reported
- ☐ Reported only some instances
- ☐ Did not report
- ☐ N/A

16. If I were to experience or witness mistreatment I would feel comfortable reporting the situation to ...

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree	N/A
My advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other faculty in the collaboration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other collaborators at my level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Belle II DEI committee	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
US Belle II DEI committee	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Please indicate if experiences of mistreatment have affected your day-to-day life within US Belle II in any of the following ways (mark all that apply)

- ☐ Changed offices or considered changing offices
- ☐ Avoided departmental or professional events
- ☐ Changed daily routine to avoid certain people or places
- ☐ Felt uncomfortable voicing your opinion or thoughts
- ☐ Did not affect at all
- ☐ Other

18. Please indicate if experiences of mistreatment in US Belle II have affected you academically or in completing your research duties within US Belle II in any of the following ways (mark all that apply)

- ☐ Had difficulty attending meetings
- ☐ Had difficulty concentrating on research work
- ☐ Seriously considered leaving school or US Belle II program
- ☐ Had difficulty completing research duties
- ☐ Did not affect substantially
- ☐ No mistreatment
- ☐ Others

19. For the following questions please indicate the degree to which you agree or disagree with the statement

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I often feel under scrutiny by people in US Belle II	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that my achievements in research get less recognition than equivalent achievements by my peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel unsupported by people in US Belle II	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Further comments

20. What are actions you'd like to see US Belle II take towards improving present practices or culture?

21. If you have suggestions regarding questions you would like to see in future climate

surveys, please indicate here.

22. Finally, if you would like to add any comments about any of the matters raised above, please reference the question number and add your comments in the text box provided. Also, if there is anything else you'd like to add or share, this is your opportunity to do so.