To the faculty of the Department of Materials Science & Engineering at Stanford University,

Motivated by recent events highlighting systemic racial discrimination against the Black community, members of the Stanford Materials Science and Engineering department have put together a set of recommendations that we present to you in this letter. The need for action has been broadly discussed in the department and society as a whole and is supported by years of empirical and experiential data. We appreciate the faculty and leadership committing to take action at the departmental town hall on June 25 and call on them to realize their commitments.

The goals described in this letter outline in detail two main thrusts, summarized below.

First: **Action must be taken to shape departmental culture to make it inclusive of all, supportive of marginalized community members, and opposed to discrimination wherever it appears.** These efforts are critical to the personal and professional success of underrepresented members of our community. Outlined in “Section 1: In-house Initiatives” under two major headings, this letter urges the department to both substantially expand efforts related to inclusivity, support, and community building as well as improve transparency on related issues. These efforts are critical and interlinked - department-wide programming on diversity and equity, improved curriculum, and resources to support marginalized community members and create a more inclusive department. Additionally, improved transparency will provide the MSE community with the tools and information to more effectively-self advocate.

Second: **The department must take decisive action to recruit, admit and support members from diverse backgrounds into the community.** These efforts must include the recruitment of women, people of color, other marginalized groups and especially members of the Black community. Changes must occur at every level of MSE recruitment, admission, hiring, and retention - from how undergrads are welcomed into the department, to how graduate students are admitted, to how faculty members are selected and considered for tenure or promotion. Likely requiring both a holistic reimagining of the graduate and faculty intake processes and a substantial commitment of resources, these efforts should aim to make members of all communities feel empowered to join and participate in the department. A number of specific proposals aimed at addressing these challenges are outlined in “Section 2: Pipeline Initiatives”.

Like much of the United States, the Stanford MSE department is far from where it needs to be, however we have been impressed at the compassion, candor, and willingness to tackle hard issues shown by leadership within the department. Rather than a list of demands, we hope that these recommendations can serve as the beginning of a fruitful discussion. However, the existing inequities are substantial and cannot be solved by half measures or positive sentiments alone. For these efforts to succeed the department must acknowledge the existing issues, set ambitious goals and hold themselves accountable to those goals. True and lasting change requires buy-in and leadership from those with the most institutional power, which we are fully optimistic you will be able to provide. Students, postdocs, and other members of the MSE community are enthusiastic about these initiatives and look forward to supporting the department’s work towards these goals.
Abbreviated Recommendations

The following recommendations were compiled deliberately and carefully. We believe that the productive next step is a response from the faculty discussing which of these actions can be executed as written, which need to be further discussed, and which are intractable (and what further steps can be taken to fill the gaps left by action items deemed unworkable). Ultimately we hope that the department will make a public statement about our goals and publish a proposed roadmap for how the MSE department will achieve them.

1. In-House Initiatives

1.1. Transparency and Accountability

1.1.1. Create an internal webpage for the MSE department that maintains information on Diversity, Equity and Inclusivity (DEI) action items and meeting minutes, events, and demographics relevant to DEI efforts
1.1.2. Develop, distribute and publish the results of an annual diversity and climate report
1.1.3. Publicly declare our department’s commitment to diversity, equity and inclusion on both the departmental website and individual group pages
1.1.4. Institutionalize DEI within the MSE department through establishment of a faculty-led DEI committee and a DEI staff member position

1.2. Inclusivity and Support

1.2.1. Promote continued department-wide discussion on diversity, equity and inclusion, re-evaluating town halls, colloquium, and representation of speakers at colloquium
1.2.2. Establish and fund a MSE department-wide mentorship program
1.2.3. Institute annual mandatory DEI trainings for all lab groups
1.2.4. Integrate topics of inequality into coursework
1.2.5. Create and implement formal mentorship training program for faculty about how to be supportive and effective research and academic mentors
1.2.6. Train the graduate students who will serve as mentors and teachers to undergraduates in our department with implicit bias and mentoring training
1.2.7. Provide funding to undergraduates to encourage undergraduate research and application to graduate school
1.2.8. Evaluate effectiveness of academic mentoring program for postdoctoral scholars to help ensure they are successful in their time at Stanford and will be competitive faculty hires

2. Pipeline Actions

2.1. Recruitment

2.1.1. Undergraduate: Evaluate how we advertise the MSE undergraduate program and determine if its presentation presents any implicit barriers
2.1.2. Graduate: Actively recruit URM students for MSE graduate program from NSBE, HBCUs, Universities’ Offices of Diversity, Community Colleges etc. and offer application fee waivers to these students, as well as equip recruiters to give high-quality application advice to prospective applicants
2.1.3. Graduate: Dedicate time and funds during visit weekend to DEI efforts, including DEI discussions, panels, advertisement of counterspaces and URM-specific programming
2.1.4. Graduate and Post-doc: Provide financial assistance and information to those applying and joining via application fee waivers and resources, moving stipends, and clear statements that PhD students receive full financial support and stipends
2.1.5. Faculty: Improve transparency and outreach for URM faculty candidates
2.2. Admission, Applications, and Promotion

2.2.1. Provide annual anti-racism bias training for all faculty members who participate in graduate admissions, post-doc hiring and faculty hiring (which is all faculty members)

2.2.2. Commit to a thorough review of hiring practices and transparency around them - post detailed description of practices on internal MSE webpage

2.2.3. Graduate: Reassess our use of GRE scores in admissions by either ending review of GRE scores or making accommodations for low-income or disadvantaged students

2.2.4. Graduate: Make additional changes to the application process by providing application advising to URM graduate applicants, increasing the length of the diversity statement, and clarifying expectations

2.2.5. Post-doc: Evaluate current hiring practices by reporting group demographics and hiring efforts and by standardizing hiring processes for post-docs

2.2.6. Faculty: Make changes to the recruitment and application process by setting diversity goals for applicant pools, requiring diversity engagement from applicants, and surveying those who decline offers

2.2.7. Faculty: Re-examine the search committee responsibilities and trainings by maintaining a diverse committee who is rewarded for their contributions

2.2.8. Faculty: Systematically delineate how diversity efforts will be evaluated in hiring and promotions
Detailed Recommendations for Departmental Action

The following provides context, details and modes of execution for the aforementioned proposed efforts found in the abbreviated recommendations list. Please specifically refer to these details when discussing the feasibility of executing the proposed efforts.

Items marked with an asterisk (*) indicate those also proposed by NOBCChE@Stanford or the Black student and postdoc community in the School of Medicine (who have been endorsed by a majority of the groups representing the Black community on campus).

1. In-House Initiatives

1.1. Transparency and Accountability

1.1.1. Create an internal webpage for the MSE department that maintains information on DEI action items, relevant meeting minutes, events, and demographics.
   - Maintain an updated list of diversity, equity and inclusion action items and the funding dedicated to each initiative
   - Post anonymous meeting minutes from: Student Advisory Committee, faculty retreats, DEI committee meetings, and any other relevant meetings
   - Publicize related events (recurring town halls, specific diversity, equity and inclusion talks, talks by faculty candidates, open meetings, etc.)
   - *Post anonymous aggregate statistics about graduate admissions and faculty hiring demographics of applicants, those with offers and matriculated students/hired faculty
   - Include information about graduate admissions, graduate student milestones, and faculty hiring process to increase transparency (anonymous meeting minutes from faculty and student committee as is appropriate)
   - *Maintain information on current student/post-doc/faculty/alumni demographics
   - List group liaisons for diversity, equity and inclusion efforts
   - *Report the department’s corporate sponsorships and relations, and work to reduce or eliminate relationships with those that do not condemn oppressive systems or contribute egregiously to environmental pollution or destruction.

1.1.2. Develop, distribute and publish the results of an annual diversity and climate report
   - Make use of the self assessment from AIP report and the College of Chemistry climate survey as a good starting place
   - Examine the holistic experience in the department
   - Publish the survey results on the MSE webpage and discuss the findings at the faculty retreat to inform and implement changes
   - See the supplemental document submitted by Dante Zakhidov for a more detailed proposal

1.1.3. Publicly declare our department’s commitment to diversity, equity and inclusion on both the departmental website and individual pages
   - Publish a compelling diversity statement on the MSE website
   - Encourage public value statements and advising philosophies on each faculty member’s website
   - Offer a publicly published road-map for planned efforts surrounding diversity, equity and inclusion

1.1.4. Institutionalize DEI within the MSE department by forming a MSE Diversity, Equity, and Inclusion Committee (DEI Committee)
   - Establish a department-affiliated committee (similar to the MSE Student Advisory Committee) with faculty member representation (at least 3 members), with meetings open to the MSE community so that staff, undergraduates, masters students, post-docs and graduate students are able to participate and contribute. The committee would be responsible for:
- Interfacing with the Dean’s office Director of E&I (Lourdes Andrade, lourdesa@stanford.edu), DEI committees in other departments, and the D&I office
- Maintaining the internal website and providing monthly updates on DEI initiative action items to hold the department accountable
- Creating and maintaining a transparent process for reporting and responding to complaints to ensure that proper action is taken, including providing support to victims of racist and/or discriminatory incidents

1.1.5. Create a DEI staff position in the department responsible for:
- Coordinating efforts within our department, the School of Engineering (interfacing with Lourdes Andrade’s work), and the university on the different initiatives being led

1.2. Inclusivity and Support

1.2.1. *Promote continued department-wide discussion on diversity, equity and inclusion, re-evaluating our current departmental speaking opportunities:
- Continue the Town Hall series with encouraged faculty attendance
- Start a conversation series within MSE about diversity and inclusion - as an option, one quarter of colloquium credit could be substituted by attendance at selected talks on diversity, equity and inclusion, or one MSE colloquium per quarter could be dedicated to a DEI talk - *in addition, send anonymous optional surveys annually to gather feedback on the progress
- Commit that a minimum of 30% of scientific speakers invited to MSE colloquium will be from an under-represented minority background each quarter (start recruiting professors from HBCUs and majority URM schools to give our colloquium) - *if that is legally permissible
- *Institute a department-wide holiday on June 19th, and distribute anti-racist information and learning activities to be completed on this day. Encourage lab groups to hold discussions on this day regarding race, equity in education and STEM, and how their research intersects with race

1.2.2. Establish and provide departmental funds for a department-wide mentorship program
- Co-opt the current MRS mentorship program and expand its scope to become a department wide peer mentorship network, encompassing undergraduate students, graduate students and post-doctoral scholars
- Execute two levels of peer mentorship programming
  - Level 1: Network Mentorship - Everyone in the department, department-wide programming aimed at connecting students and providing an avenue to build relationships and ask questions
  - Level 2: Interpersonal Mentorship - Small groups, more intimate programming, aiming at giving students direct mentors and personal relationships to sustain throughout their academic career in the department
- Formalize and actively advertise the MSE mentorship network
  - Broadly advertise and support participation in this program including active support from faculty to their research groups
  - Support students who serve as leaders of this program, for example, by giving elective course credit, or financial compensation
- See more detailed suggestions for this program in the Mentorship proposal submitted by Devi Ganapathi and Ajay Subramanian

1.2.3. *Institute annual mandatory DEI trainings for all lab groups
- DEI leaders from each group can meet with faculty DEI leads and plan appropriate programming that has already proved to be effective

1.2.4. *Integrate topics of inequality into coursework
- A class or classes that focus on ethics, DEI, race, and social and environmental justice should be a core part of the MSE curriculum
- Existing core classes that inspect applications of coursework can go further to examine societal and environmental impact

1.2.5. *Create and implement formal advising and mentorship training for faculty that focuses on how to be a supportive and effective research and academic advisor
1.2.6. *Train the graduate students who will serve as mentors and teachers to undergraduates in our department:
- Require a formal training program for graduate students who will mentor students in research to make sure that the undergraduate students have a successful and fulfilling experience
- Require a formal training program for course assistants in any MSE course that includes discussion on bias, discrimination, and inequity in engineering education, similar to what is done in the Physics department

1.2.7. Provide funding to undergraduates to encourage undergraduate research and application to graduate school:
- Make paid undergraduate research a priority
  - Have the department commit to fully funding each undergraduate student for one quarter and working with the professor to fully fund a second quarter
  - *Designate a centralized set of funds to pay for MSE undergrads doing research in or out of department
  - *Designate funds for MSE undergraduate students to attend conferences, including diversity-oriented conferences
- Create a grant for students applying to graduate school - this would pay upfront (not reimburse) and cover the cost of our undergraduate students to take the GRE and send the scores to institutions to which they are applying, and cover the cost of application fees - it would be required for students who accept this grant to submit proof of applications to schools, and proof of taking the GRE

1.2.8. Evaluate effectiveness of academic mentoring program for postdoctoral scholars to help ensure they are successful in their time at Stanford and will be competitive faculty hires

2. Pipeline Initiatives

2.1. Recruitment

2.1.1. Undergraduate: Evaluate how we advertise the MSE undergraduate program and determine if its presentation presents any implicit barriers (*Is website language welcoming and encouraging to all backgrounds? Is there a clear presence of the undergraduate community?*)

2.1.2. Graduate: *Send faculty and students to actively recruit URM undergraduate students for the MSE graduate program from NSBE, HBCUs, Universities’ Offices of Diversity, Community Colleges, etc. and offer application fee waivers to these specifically “invited” students at such events:
- Train recruiting faculty and students to communicate what successful applications look like - *many students lack access to those who are familiar with graduate admissions and do not have someone to read over their resume and personal statements*
- Prioritize the presence of URM community members in recruitment events
- *Encourage professors to reach out to and interface with HBCUs, Community Colleges, and universities with high populations of URM students when in the area
- Cover costs of graduate student visit weekends up-front - *this eliminates the economic barriers presented to low-income students who cannot front the initial costs*
- During recruitment, additionally share information on summer research programs at Stanford, giving key advice on how to pursue these opportunities

2.1.3. Graduate: Dedicate time during graduate visit weekend to diversity and inclusion efforts:
- Incorporate more diversity discussions at admitted students weekend, such as a panel, led jointly by students and faculty
- Hold a breakfast or other small programming for URM students at visit weekend or pre-programming before visit weekend
- Advertise and provide time for interaction with counterspaces (on Friday, so all students can take advantage and it is clear that it is a priority)

2.1.4. Graduate and Post-doc: Provide additional financial assistance and information to those applying and joining the MSE program
Highlight application fee waivers and other URM-specific resources on the MSE admissions website (SERGE for grad applicants, PRISM for post-docs applicants)

Provide a moving stipend - relocating to Stanford is financially taxing and usually happens before receiving a paycheck

Update the departmental and admissions website to:
- Make it transparently clear that all PhD students are fully funded
- Discuss qualitatively what it means to be a strong applicant and check with E&I office to make sure that language is not coded - emphasize the diversity of academic backgrounds and experiences that make up the department

2.1.5. Faculty: Improve transparency and outreach for URM faculty candidates

- Establish connections with graduate students, post-docs, and faculty at HBCUs or primarily URM-serving institutions
- Publish publicly available information on the hiring process in the Materials Science Department (similar to those offered by Cornell and Cornell Engineering), with information on:
  - Faculty hiring process outline, including information on stages and those involved
  - Best hiring practices as recommended by institutional research that will be enforced during the process

2.2. Admission, Applications, and Promotion

2.2.1. Provide annual anti-racism and implicit bias training for all faculty members who participate in graduate admissions, post-doc hiring and faculty hiring (which is all faculty members)

- Work with DEI committee to select training that has already proven to be effective
- Where possible require participation in these trainings, and where not strongly and publicly urge professors to hold themselves accountable for attending
- Think critically about how we read materials from applicants who might not know the coded language needed to describe themselves
- Be able to recognize biased language present in letters of recommendation (even from less well known professors)

2.2.2. Commit to a thorough review of hiring practices and transparency around them - post detailed description of practices on internal MSE webpage

2.2.3. Graduate: Reassess our use of GRE scores in admissions by either:

- *Ending review of GRE scores - GRE scores have been shown to not be predictive of student success
- Making accommodations:
  - Eliminate the requirement to submit scores without penalization
  - Offer vouchers for the cost of sending GRE scores to the department - to reduce barriers presented to low-income students
  - Only require unofficial GRE scores until a student has been admitted, after which the department will proactively fund (not reimburse) the cost of sending scores

2.2.4. Graduate: Make additional changes to the application process to address barriers particular to under-represented communities by:

- Providing support to URM graduate student applicants by instituting a Materials Science Graduate Application Assistance Program (GAAP)
- Increase the length limit on the diversity statement to 2 pages and make it a required part of a complete application
- Modify the GPA and GRE scores “exceptions” section in applications to include more welcoming and encouraging language
- Providing more transparency about applicant expectations

2.2.5. Post-doc: Evaluate current hiring practices for transparency and accountability

- Require faculty to report group demographics at annual faculty retreat and enumerate efforts they have taken to improve post-doc diversity
- Standardize the post-doc hiring process and require openings to be advertised on group websites
2.2.6. Faculty: Make changes to the hiring application process to prioritize DEI criteria
- If possible - require that at least 20% of applicants interviewed for a faculty position represent an underrepresented minority
- *Require diversity statement from candidates and make previous demonstrated commitment to DEI a criteria for a job offer
- Conduct a post-search survey of the candidates who rejected the offer to understand why they did not accept a position
- Develop standard rubrics for the hiring process that reduce bias in the evaluation process
- Re-assess the metrics and practices involved in the evaluation of candidates:
  - *Do we give the candidate an opportunity to recover from jet-lag and arrive well-rested to an interview?
  - How much emphasis do we place on metrics like H-index as opposed to DEI efforts and history of mentorship?
  - Are metrics such as H-index or number of publications effective measures for the talent we want in our department?

2.2.7. Faculty: Re-examine the search committee responsibilities:
- Select a diverse search committee - recruit from other departments or pay to bring in people from other institutions such that we do not ask the same people every time and overburden them
- Offer faculty the ability to take the quarter off from teaching during hiring or recruiting
- *Include interested graduate students and postdoctoral scholars in every possible stage of the hiring process, most importantly in the initial down-selection process, as well as anywhere from reading applicant materials to final decisions

2.2.8. Faculty: Systematically delineate how diversity efforts will be evaluated in hiring and promotions
- Strongly encourage and advertise opportunities for managerial/diversity/mentorship training for incoming (and already present) faculty hires
- Diversity initiatives and progress should be part of the criteria for promotion - they are a critical, and often overlooked, part of our mission as an institution, and those who take on such efforts are often penalized for engaging in tasks considered non-promotable
Closing Statements

It is our strong hope and expectation that these recommendations will be seriously considered and discussed during the faculty retreat and that the work we have done aligns with, complements, and adds value to the actions we know are being considered.

As members of the department who care about its future, we felt it important to spend the time to think carefully about actions the department could take, and we look forward to a response from the faculty that we hope will include feedback on each individual recommendation, with either:

1. Support and commitment to implementation of the proposed changes
2. Specific questions and concerns about ideas that will require further discussion
3. Explanation for why the recommended action is unworkable and an alternative proposal that addresses the same concern

National attention is focused on timely and well-specified institutional responses, so we have aimed to make focused and achievable suggestions that would have meaningful impact. To meet the challenges of the day, the faculty response needs to have a proposed timeline for changes – both immediate and long term – and concrete metrics for how we, as a department, can hold ourselves accountable to the progress that we all wish to occur.

We intend for this document to be a starting place for a long and ongoing discussion in our department, with a goal we all share to improve on issues of diversity and inclusion. We know the ability to contribute to our scientific mission is not dependent on race, gender, sexual orientation, or family background. Excellence is a fundamental part of our culture and as we strive to be at the forefront of scientific innovation we must also aspire to be leaders in reaching out to and including communities that have not historically been well-represented in our field. If we are successful, the scientific community will benefit tremendously - we are able to achieve our scientific best when when everyone has a seat at the table and the support they need.

We are excited to support and work with a faculty that shares our commitment to real and lasting progress.