Statement on
Fisher v. University of Texas at Austin

AAPT Committee on Diversity in Physics
American Association of Physics Teachers

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Background

Recently, during oral arguments in the case Fisher v. University of Texas at Austin, Chief Justice Roberts asked, "What unique perspective does a minority student bring to a physics class? I'm just wondering what the benefits of diversity are in that situation?" Following these questions, Justice Scalia referenced a brief that "pointed out that most of the black scientists in this country don't come from schools like the University of Texas. They come from schools where they do not feel that they're being pushed ahead in classes that are too fast for them."

In this statement, we respond to the Court's questions and statements by drawing on perspectives and research findings from physicists, educators, education researchers, and related professionals. Herein, we affirm that:

1. racism and sexism exist in physics and physics education;
2. homogeneity in physics is the byproduct of racism and sexism;
3. Affirmative Action is an important counter-measure to institutional racism and sexism in physics;
4. making physics more inclusive and supportive of women and people of color is required for doing excellent physics;
5. increasing diversity is a matter of justice; and,
6. women and people of color do not need to justify their presence in physics classrooms.

Diverse perspectives benefit physics by informing not just research and teaching practices, but also the ways that researchers, teachers, and students interact with, collaborate with, and support each other. Hence we implore the Court to ask, "Why are brilliant women and brilliant people of color being systematically excluded from, and failed by, physics education? And what must we do to reverse this trend?"

Below, we elaborate on our position.

Statement

Racism and sexism exist in physics and physics education, spanning interpersonal, ideological, internalized, and institutional contexts. Examples include: demoralizing and draining interpersonal microaggressions and harassment experienced by women in science, with especially severe forms of harassment targeted to women of color;[1,2] underlying ideologies that Black, Hispanic, and Native American people are lazy, Asian people excel at math, girls are bad at math, and science is better suited for

boys; negative impacts on female and Black students' anxiety levels and test scores due to internalized fears of confirming negative stereotypes about one's group;[3,4] and institutional over-reliance on standardized tests as measures of proficiency,[5,6] attitude,[7] and preparedness.[8]

These and other forms of racism and sexism combine in powerful ways to uphold homogeneity in physics,[9–11] a field in which about 80% of bachelor's degrees are awarded to men, 80% to white people, and fewer than 4% to women of color.[12,13] Worse, recent trends in representation are quite alarming: the fractions of both female and Black students earning physics bachelor's degrees have been steadily declining for over a decade; as of 2010, only about 20% of physics bachelor's degrees were awarded to women, 2.5% to Black people, and less than 1% to Black women.[12,13]

The stark homogeneity in physics is a byproduct of racism and sexism in physics. Microaggressions, harassment, isolation, stereotypes, and internalized fears of confirming those stereotypes all contribute to students' physical and emotional well-being, their grades, and their decisions about whether to stay in physics or even to pursue a physics degree in the first place. These and other factors (not the discredited[14,15] mismatch theory) play an important role in the experiences of students from underrepresented groups in physics, ultimately informing whether they choose to study at a Minority Serving Institution, a Women's College, a Predominantly White Institution, or another type of institution.

Furthermore, institutional barriers prevent access to physics education by female students and students from marginalized racial/ethnic groups. As a result, Hill, Corbett, and St. Rose recommend targeted recruitment of prospective female undergraduate students as an institutional strategy to increase representation of women in the sciences.[9] Once accepted to college, female students and students of color face additional institutional barriers to educational opportunities. For example, Milkman, Akinola, and Chugh showed that, when contacted to discuss research opportunities, professors are more responsive to white men than to all other groups of students.[16] Furthermore, Miller and Stassun caution that misuse of GRE scores, which have been found to be poor predictors of success in physics graduate programs, can exacerbate underrepresentation of Black, Hispanic, and Native American students during the transition from undergraduate to graduate school.[8] Clearly, race- and gender-conscious approaches to recruitment and selection of students are necessary to ensure equal access to physics education. Along these lines, Affirmative Action is an important counter-measure to institutionalized racism and sexism during the process of admission to undergraduate and graduate physics programs.

Making physics more inclusive and supportive of women and people of color is a top priority for physics research, teaching, and learning. For instance, the President's Council for Advisors on Science and Technology (2012) recently recommended increasing retention of science students from underrepresented groups as an important strategy for meeting the workforce needs of the United States over the

next decade.[17] Increasing diversity and valuing different cultures in the science classroom can create effective, welcoming, and collaborative learning- and work-spaces.[18] In these spaces, participants "have the chance to shed the identity of a powerless novice and take on, to a larger degree, an identity of expert or leader."[19] In addition, the physics research community benefits from diversity in the following ways: diminished bias in reaching consensus on research foci and results,[20,21] improved problem-solving ability,[22] increased creativity,[23,24] and production of highly-cited work published in high-impact journals.[25] In discussing connections of diversity to innovation, we are reminded of African American theoretical physicist Jim Gates, Jr.'s recollection of a comment made to him by Physics Nobel Laureate Mohammad Abdus Salam: "When enough people of the African diaspora enter physics, something like Jazz will appear."[26]

Perhaps more importantly, ongoing efforts to diversify physics are a matter of justice. Physics and physics education do not exist in a vacuum, and homogeneity in physics must be understood in the historical context of state-sanctioned discrimination in housing, employment, and education during the Jim Crow era of the United States. One major outcome of the Civil Rights Movement was prohibition of discrimination in public educational institutions, an important lurch forward towards the broad goal of integration. However, racism and segregation still exist in the present era, often reinforced by "colorblind" policies that use race-neutral language to achieve racialized impacts.[27] In this sense, diversification of physics is equivalent to desegregation of physics.

In the spirit of justice, we believe that all students deserve the opportunity to study and learn physics, regardless of whether they individually contribute unique perspectives to the classroom. Indeed, requiring that individual students contribute unique perspectives would have devastating effects for white male college students who constitute an overrepresented majority of physics students. Moreover, as African American astrophysicist Jedidiah Isler recently said,[28]

> Black students' responsibility in the classroom is not to serve as 'seasoning' to the academic soup. They do not function primarily to enrich the learning experience of white students. Black students come to the physics classroom for the same reason white students do; they love physics and want to know more. Do we require that white students justify their presence in the classroom? Do we need them to bring something other than their interest?

We offer a feminist and anti-racist counterideology inspired by the work of Leonard and Martin:[29] we assume *a priori* that all students, including and especially women and people of color, are brilliant and deserving of space in the physics classroom. With this framing, discussions of desegregation in physics shift away from questions about whether any particular student contributes unique perspectives or whether diversity is overall beneficial. Instead, such a counterideology

forces us to ask ourselves, the Court, and the public, "Why are brilliant women and brilliant people of color being systematically excluded from, and failed by, physics education? And what must we do to reverse this trend?"

For all of these reasons, we believe that Affirmative Action is important and necessary for doing the best possible physics. We hope that the Court takes these perspectives into consideration when drawing conclusions in Fisher v. University of Texas at Austin.

Approval to post this statement

This statement was originally drafted by the AAPT Committee on Diversity in Physics and submitted to the AAPT Executive Board for approval. At the Spring 2016 AAPT Board Meeting, the AAPT Executive Board passed the following motion:

> The Board encourages the Committee on Diversity to post their statement on Fisher v. University of Texas at Austin on their committee webpage, requests that the Executive Office provide a link to that statement in the next eNNOUNCER and on the landing page, and encourages the [Committee on Diversity] to submit it to [The Physics Teacher] for consideration as an editorial.

Following the guidance of the AAPT Executive Board, the AAPT Committee on Diversity in Physics has made our statement on Fisher v. University of Texas at Austin available to the public.

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