A Statement on a Recent Talk at CERN

The statement here is based upon widely reported events, publicly available slides, and eyewitness accounts. All authors and signatories represent themselves and not their institutions.

On Friday, September 28th, 2018, a talk was given at CERN by Alessandro Strumia, a well-known particle theorist who is a Professor of Physics at the University of Pisa and a current associate of the theory department at CERN. In this talk he argued that the primary explanation for the discrepancies between men and women in theoretical physics is that women are inherently less capable. As particle physicists, we are appalled by Strumia’s actions and his stated views on women in high energy physics.

We write here first to state, in the strongest possible terms, that the humanity of any person, regardless of ascribed identities such as race, ethnicity, gender identity, religion, disability, gender presentation, or sexual identity is not up for debate. Physics and science are part of the shared inheritance of all people, as much as art, music, and literature, and we should strive to ensure that everyone has a fair opportunity to become a scientist. The question of discrimination based on ascribed identity is a moral one, and we write to affirm that discrimination is not a welcome feature of our field, however pervasive it may be. It is clear that our social environment disparately affects the participation of people with ascribed identities that have been traditionally marginalized, and the fields of women’s and gender studies, science and society studies, physics education research, anthropology, sociology, philosophy, and Black studies have had much to say over the years about how this marginalization operates. The thin veneer of scientific rigor with which Strumia’s talk began was followed by open discrimination and personal attacks, which we condemn unconditionally.

Secondly, we write to strongly express our view that the science case presented by Strumia was fundamentally unsound. It is clear to all of us that Strumia is not an
expert on these topics and is misusing his physics credentials to put himself forward as one. Furthermore, those among us who are familiar with the relevant literature know that Strumia’s conclusions are in stark disagreement with those of experts. He frequently made the basic error of conflating correlation with causation, and while Strumia claimed to be proving that there is no discrimination against women, his arguments were rooted in a circumscribed, biased reading of the data available, to the point of promoting a perspective that is biased against women. The origin and validity of the data he presented have not yet been corroborated, but even if we take it at face value in all cases there are obvious alternative explanations that have been developed in the aforementioned social science disciplines that were not controlled for, and that are directly in contradiction with his conclusions. Here are some examples, in the order they appear in the presentation:

1. Strumia argues that the larger fraction of women in the humanities compared to the sciences is evidence against discrimination in the sciences, purportedly because the distinction between right and wrong is “less clear” in the humanities, and thus it would be easier to discriminate there if people wanted to. In addition to the academic arrogance of this argument, it makes no attempt to control for the obvious alternative that there are fewer women in the sciences because of systemic discouragement and discrimination. And indeed the presence of such discouragement and discrimination has been well-documented in many places, for example see e.g. Hodari et al. (1), Johnson et al. (2), and the recent NASEM report (3) on sexual harassment in academic sciences, engineering and medicine.

2. Strumia argues that since women are more well-represented in theoretical physics in countries where discrimination is more brazenly institutionalized, this shows that their low representation in physics has nothing to do with discrimination. This claim ignores cultural differences, and also the possibility that women in such countries have fewer career options outside of academia. Without controlling for such effects, any attempt to draw conclusions is meaningless.

3. Strumia argues that since men and women more or less cite the same papers at the same rate, men are not discriminating against women. However, choice of references is subject to unconscious bias in addition to conscious discrimination. Such unconscious bias is often found at similar levels (4) in both men and women. Even without this possible effect, the equal citation rate at most only suggests that male and female scientists are equally capable of identifying the most cited papers in their field, and as we discuss below citation count is not a substitute for quality.
4. Strumia argues that since the most cited papers are disproportionately by men, this gives evidence that men are intrinsically better at physics. In between intrinsic ability and citation counting however, there is the huge and complicated process of how physicists are raised, trained, hired, and perceived. Even at the professorial level, discrimination can still play an important role (such as e.g. the imbalance in telescope time awarded to female researchers (5)). Without a thorough understanding of these processes, it is impossible to conclude anything about people's innate abilities.

5. Strumia complains that he personally was not hired for a position that a woman was hired for, despite having a larger number of citations than her. He even compares his citation number to that of a (female) member of the search committee for this job. This information is surely useful for understanding the psychology of why Strumia would give such a talk, but it is no indication of injustice in the hiring process. Indeed citations accrue for all kinds of reasons, some laudable and some not, and using them as a substitute for scientific quality is very problematic; any responsible hiring process will take much more into account than mere citations, especially for a management role, as in the case of the position in question. As an example of the inappropriateness of citations as a metric, almost 1/3 of Strumia's citations come from being one of thousands of authors on the CMS Higgs discovery paper, to which we can safely conclude that his contribution (as a theoretical associate in an experimental collaboration) was modest. Hundreds more citations come from papers about the statistically insignificant 750 GeV fluctuation at CERN, which disappeared with more data. As physicists, we are used to vigorous and often heated debate over ideas and theories, but the fact that Strumia took the opportunity to personally attack scientists who have been active in efforts to improve the situation for minorities and white women in physics, out of apparent jealousy that at some point they were offered jobs that he applied for, is deplorable and unacceptable.

6. Strumia uses as evidence for his case a claim that the number of citations for women increases more slowly than for men as their careers progress. His numbers however do not control for many factors, including social expectations that may result in women taking on more primary caregiver roles at home, or more departmental roles earlier in their careers. These in fact might fit his data better than assuming women are inferior since the decline he claims does not begin until after the postdoc level.

7. Strumia argues that Marie Curie’s Nobel prize is evidence against discrimination. Laudling one outstanding individual does not exculpate anyone
from oppressing thousands of others. Further, it should be noted that Marie Curie faced both xenophobic and sexist resistance to her work both during her research and during the process of receiving the Nobel Prize. Her success, in spite of this resistance, is heroic and admirable, and not an example of being welcomed with open arms by the community as Strumia suggests. Moreover there are at least four women whose work is relevant for particle physics who are widely viewed as having deserved the Nobel prize but who did not receive it, in some cases even though their male colleagues did: Chien-Shiung Wu, Vera Rubin, Lise Meitner, and Jocelyn Bell Burnell. While we are pleased to see Prof. Strickland’s accomplishments recognized this year, a gap of 55 years since the last woman won the Nobel Prize in Physics does not suggest that women in our field face no external obstacles to success. Such well-known cases where accomplishments of women were not formally acknowledged suggest that similar omissions may be occurring at all levels, and raise another possible reason for the differential in citations discussed previously.

8. Strumia argues that it is actually men who experience discrimination, since they are more likely to serve in wars and be used as forced labor. While many talented people of all genders still face barriers due to war and conflict, these concerns are not part of the experience of the majority of white male physicists born and raised in Europe or North America in the current era. He also misquotes the Istanbul convention as saying that men cannot be discriminated against, when the actual text is that "special measures that are necessary to prevent and protect women from gender-based violence shall not be considered discrimination under the terms of this Convention." (Istanbul Convention, Chapter 1, Article 4.4 (6))

Ultimately, answering questions of cause and effect is subtle and requires carefully designed studies. Mining data post facto to answer these questions is fraught with faulty conclusions based on misunderstood correlations in the data.

In addition to these scientific shortcomings, we reiterate that Strumia’s arguments are morally reprehensible. Belittling the ability and legitimacy of scientists of color and white women scientists using such flimsy pretexts is disgraceful, and it reveals a deep contempt for more than half of humanity that clearly comes from some source other than scientific logic. It will add to the obstacles that women and gender minorities, as well as men from traditionally underrepresented communities, struggle with on a daily basis. This applies especially to minoritized people over whom Strumia has a
professional influence, for example through writing letters of recommendation and making hiring decisions.

Finally, we would also like to underline how grossly unethical it is to misrepresent the topic of one's talk to workshop organizers to promote an agenda which is antithetical to the workshop itself. To personally attack one of the organizers during said talk is even worse. We hope that Strumia’s professional colleagues and superiors will take all these points into careful consideration in all future decisions involving him. We also hope that the entire community has learned from this incident that speakers for workshops on gender -- or other ascribed identities -- in physics should include recognized experts, with a track record of speaking and publishing in an appropriate manner on the topic at hand, and moreover that organizers should seek guidance from such experts. In addition to other disciplines, physics and astronomy are home to many in-house experts on the sociology and philosophy of physics (e.g. (7), (8), (9), (10), (11), (12), (13), (14), (15), (16)). This moment reminds us to pay attention to their work.

Statement and updates can be found at www.particlesforjustice.org

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