

Talking points to address the value of Diversity in Physics

Diversity promotes innovation:

- Diversity is an asset that catalyzes innovation (Scott Page, “The Difference”)
 - Jim Gates: “If you want to get the most active, the most innovative, the most rapid-moving science, I believe ... diversity drives higher levels of innovation.” (APS News; <https://www.aps.org/publications/apsnews/201602/supreme.cfm>)
- Collective intelligence from diverse groups; Diverse groups come to better conclusions than homogeneous groups ([Phillips, K. W., Mannix, E. A., Neale, M. A., & Gruenfeld, D. H. \(2004\). Diverse groups and information sharing: The effects of congruent ties. *Journal of Experimental Social Psychology*, 40\(4\), 497-510.](#))
- Ideas generated from diverse groups are rated at a higher quality than ideas from homogenous groups. ([McLeod, P. L., Lobel, S. A., & Cox Jr, T. H. \(1996\). Ethnic diversity and creativity in small groups. *Small group research*, 27\(2\), 248-264.](#))
- Scholars from minority groups offer new perspectives and raise new questions, challenges, and concerns. (Antonio, Anthony Lising. "Faculty of Color Reconsidered: Reassessing Contributions to Scholarship." *Journal of Higher Education* 73 (2002): 582-602.)
- The level of critical analysis of decisions and alternatives was higher in groups exposed to minority viewpoints than in groups that were not. (Nemeth, Charlan Jeanne. "Dissent as Driving Cognition, Attitudes, and Judgments." *Social Cognition* 13 (1995): 273-291. Nemeth, Charlan Jeanne. "Differential Contributions of Majority and Minority Influence." *Psychological Review* 93 (1986): 23-32. Nemeth, Charlan Jeanne. "Dissent, Group Process, and Creativity: The Contribution of Minority Influence." *Advances in Group Process* 2 (1985): 57-74. Schulz-Hardt, et al. "Group Decision Making in Hidden Profile Situations: Dissent as a Facilitator for Decision Quality." *Journal of Personality and Social Psychology* 91 (2006): 1080-1093. Sommers, Samuel R. "On Racial Diversity and Group Decision Making: Identifying Multiple Effects of Racial Composition on Jury Deliberations." *Journal of Personality and Social Psychology* 90 (2006): 597-612. Antonio, Anthony Lising et al. "Effects of Racial Diversity on Complex Thinking in College Students." *Psychological Science* 15 (2004): 507-510.)
- Corporate innovation found that the most inventive companies deliberately established diverse work teams. (Kanter, 1983; McKinsey, C. (2007). Women matter: Gender diversity, a corporate performance driver. *Report.*; [Hunt, V., Layton, D., & Prince, S. \(2014\). Diversity matters. McKinsey&Company, London and Atlanta, available at: \[http://www.mckinsey.com/insights/organization/why_diversity_matters\]\(http://www.mckinsey.com/insights/organization/why_diversity_matters\) \(accessed March 10, 2015 and \[https://www.mckinsey.com/~media/mckinsey/businessfunctions/organization/our_insights/why_diversity_matters/diversity_matters.ashx\]\(https://www.mckinsey.com/~media/mckinsey/businessfunctions/organization/our_insights/why_diversity_matters/diversity_matters.ashx\) \).\)](#)

- Scientific papers with a more diverse author list have higher impact ([Freeman, R. B., & Huang, W. \(2014\). Collaboration: Strength in diversity. Nature News, 513\(7518\), 305.](#))
- Physics is a human endeavor and the path we take towards understanding nature depends on our backgrounds and our sense of style.
- Diversity disrupts conformity, prompting people to scrutinize facts, think more deeply, and develop opinions (“Ethnic diversity deflects Price Bubbles”, Sheen S. Levine et al, PNAS 30, 111 (2014) <https://doi.org/10.1073/pnas.1407301111>, “Diversity Makes You Brighter” Op Ed by Sheen Levine and David Stark, Dec 9, 2015, NyTimes)

We may be missing some of the best minds if physics lacks diversity:

- We do not know the ethnicity, gender, or orientation of the next Einstein
- “APS is committed to supporting the advancement of knowledge, and the people who make this possible. We cannot separate the two.”
<https://www.aps.org/about/governance/letters/scotus.cfm>

Diversity is critical to address workforce needs:

- US Demographics are changing rapidly, and demographics in physics as a discipline are not currently reflecting these changes. This means large and growing fractions of US Citizens are not able to participate in highly technical, strategic, and well paid jobs.
- Foreign countries are investing more than the US in their own STEM infrastructure, so there is a reverse brain drain (non-US folks are going home after they get their PhD). This then causes an issue for the "system" because the sources of STEM workforce are uncertain if this leak exists/expands/etc. Thus, we need to cultivate domestic talent from populations that are underrepresented in physics.

<https://www.nap.edu/catalog/12984/expanding-underrepresented-minority-participation-in-americas-science-and-technology-talent-at>

Equity in a democratic society:

- It is within living memory that minorities such as African Americans were actively not allowed to attend the universities of some states or were restricted to study at only certain institutions established with the sole purpose of educating them, creating effective educational ghettos within our society. Social and economic disparities make it very difficult for certain segments of our society, particularly underrepresented minorities, to have access to the quality of education that is required by our competitive society. At the same time scientific knowledge

particularly since the last half of the past century, has become a critical political resource. Gender disparities and discrimination also affect the access of diverse sectors to the education and knowledge that are critical to the political power structure.

- A democratic society needs a scientific body that is diverse itself and also committed to serve a diverse society.