

Transdisciplinarity: Toward Trans Inclusion and Creative Artistic Expression in the Physical Sciences

Cite This: *ACS Nano* 2025, 19, 3967–3968

Read Online

ACCESS |

Metrics & More

Article Recommendations

This Editorial and the accompanying journal front cover are part of the ACS Diversity & Inclusion Cover Art series that seeks to amplify marginalized voices and recognize groups historically excluded from chemistry, including LGBTQ+ chemists.

As a queer and trans scientist, seeing a trans pride flag or a transmission electron microscope (TEM) are both everyday occurrences, but it feels almost shocking to see the two together, because they are thought of as belonging in different spheres. In this drawing titled “Queer at the Nanoscale,” I aimed to illustrate a vision for the inclusion of queer and trans people in chemistry and materials science. Being a PhD candidate working in the field of nanomaterials, I wanted to include objects I work closely with in my research — glassware and a TEM (with the green glow of the electron beam on the phosphor screen)—juxtaposed with symbols from the life of people from historically excluded groups. Among this imagery is a pride flag inclusive of trans and intersex people of color, a lab coat with a pronoun button, and a set of forearm crutches. Drawing from my experiences, the piece focuses on queer/trans inclusion while also creating space for representation of people with additional intersecting identities, such as race and disability, because the fight for a seat at the table is a collective and intersectional one. By collecting all these individual objects and imagery together in collage-like fashion, I hope to show these two worlds—that of science and of queer/trans existence—collided into one, giving an abstract depiction of what true equity and belonging might feel like for trans scientists.

Also in this scene is an upward-pointing pink triangle with a nitrile-gloved hand raised in a fist of solidarity to center the fact that the liberation of queer/trans people and their full inclusion in STEM fields is an ongoing struggle. The pink triangle is an iconic symbol of the queer community that has been reclaimed from its original inverted orientation as a badge to label gay men in Nazi concentration camps.^{1,2} This reclamation began in the 1970s,¹ and the pink triangle later gained traction as the focal point of the iconic SILENCE = DEATH posters used by activists in the AIDS Coalition to Unleash Power (ACT UP) in the 1980s.³ In my drawing, within the pink triangle sits the transgender symbol as well as the molecular structures of estrogen (right) and testosterone

(left), the life-saving hormones that trans people fight for access to.

With this work I also draw upon my experience in the visual arts and my ongoing hope to advocate for the merit of creativity and novel visualizations within STEM fields. I believe that it is especially crucial for these aspects of creative artistic expression to be interwoven into scientific practice in a time when interdisciplinary and transdisciplinary approaches (pun intended) are needed to tackle complex 21st century issues. As artists we have a unique perspective that often goes underappreciated in the sterile practice of science; in truth creativity and visualizations are essential to scientific progress. From the handmade drawings of organic molecules and crystallographic projections in the 19th century⁴ to the virtual reality software Nanome⁵ that I used in my undergraduate thesis to visualize large biomolecules, representational pictures have helped scientists understand and communicate complex chemical and physical phenomena to both laypeople and experts. It is here that details become extremely important, such as the 3D orientation of amino acid residues in a protein crystal structure or the identity of high index crystal facets on a nanoparticle. As science becomes increasingly interdisciplinary, it is critical that our ability to visually represent and communicate our science across disciplinary boundaries continues to develop at the same rate.

As a trans person who sometimes finds themselves feeling stuck at the boundary of belonging in scientific research, it is natural for me to consider artistic expression as a necessary element of science, having been itself often overlooked and considered unfit for inclusion. As an artist and PhD Candidate, my continuing mission is to promote the value of art and creativity in the practice and communication of science. I hope to construct metaphorical bridges between these disciplines that are seemingly disparate but in reality are complexly intertwined. I believe creative artistic efforts such as drawing, sculpture, and performance can be harnessed as tools to make

Published: February 4, 2025



ACS Publications

Published 2025 by American Chemical Society

3967

<https://doi.org/10.1021/acsnano.4c18084>
ACS Nano 2025, 19, 3967–3968

science accessible and interesting to broad audiences and include voices historically excluded from science. This journal cover is one example of that. With over 70 h of work put into this drawing, its creation is a labor of love for all the trans and queer scientists who feel a divide between their lived experiences and the scientific environment they work in.

Saxton Fisher

■ AUTHOR INFORMATION

Complete contact information is available at:

<https://pubs.acs.org/10.1021/acsnano.4c18084>

Notes

Views expressed in this editorial are those of the author and not necessarily the views of the ACS.

■ REFERENCES

- (1) Waxman, O. B. *How the Nazi Regime's Pink Triangle Symbol Was Repurposed for LGBTQ Pride*. TIME. <https://time.com/5295476/gay-pride-pink-triangle-history/> (accessed 2024-07-02).
- (2) Jensen, E. N. The Pink Triangle and Political Consciousness: Gays, Lesbians, and the Memory of Nazi Persecution. *Journal of the History of Sexuality* **2002**, *11* (1), 319–349.
- (3) SILENCE = DEATH, Brooklyn Museum Archive. <https://www.brooklynmuseum.org/opencollection/objects/159258> (accessed 2024-07-02).
- (4) Hollister, B. E.; Pang, A. Scientific Visualization in the Nineteenth Century. In *A Concise Introduction to Scientific Visualization: Past, Present, and Future*; Springer International Publishing: Cham, 2022; pp 39–56.
- (5) *Nanome Version 1.24: A Virtual and Mixed Reality Platform for Molecular Design & Drug Discovery*; The Eurographics Association. <https://nanome.ai/> (accessed 2024-07-02).