

# Social Networks Key to LGBTQ+ Physics Students Making It Through Grad School

A new survey shows that affinity groups provide crucial support to women and LGBTQ+ physics PhD students—groups that continue to experience harassment and hostility.

By Katherine Wright

Physics is often idealized as an objective science whose practitioners use facts and data to derive the rules by which the Universe behaves. As such, human biases should have no impact on the field—the laws by which a proton moves should be the same regardless of who measures the particle. But, as with other areas of science, and of life, prejudices abound among those who practice physics, leading to harassment and discrimination against physicists with certain identities. These actions can create marginalization and negative workplace climates and impact the retention of certain

groups of people (see [Viewpoint: Making Physics Inclusive to LGBTQ+ Folks](#)).

Now Justin Gutzwa, who uses the pronouns they/them, and their colleagues present findings that show how women and LGBTQ+ physicists navigate this discrimination by finding or creating social groups where their identities are celebrated [1]. The researchers says that their findings indicate that to combat oppressive behaviors, such as sexism, heterosexism, and transphobia, physicists need to embrace identity differences rather than shun them. “Physics is often considered as a field where identity doesn’t belong, [meaning] that who you are as a person has no influence on what you can achieve. We know that’s not true,” says Gutzwa, who studies problems related to systemic minoritization in educational settings at Michigan State University. “Who a person is matters, as do their experiences, and both factors are just as important for success as a person’s formal education.”

For their study, Gutzwa and their colleagues interviewed 100 women and LGBTQ+ folks with physics PhDs, recruited through personal connections and email campaigns. Roughly a third of the participants had stayed in academia after graduating, while the others had moved to industry or government jobs. The team interviewed each person about their graduate school experiences, asking questions that probed the environments where the interviewees had studied and explored how the interviewees had navigated their time as students.



Social groups that embrace rather than shun different identities are key to supporting students from minoritized group, according to a new study.

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Most of the interviewees—89 out of 100—reported graduate school as having been a negative experience, with many sharing being gaslit, harassed, or minoritized. Many also described that faculty tried to erase their identities by repeatedly stating that who they were was irrelevant when it came to being a researcher. Interviewees said that such interactions led them to compartmentalize their social and professional selves. “I’ve been very bluntly told that who I am as a person doesn’t matter in the physics classroom,” said study-participant Sequoia (all the interviewees were given pseudonyms to protect their identities), who identifies as a white, nonbinary, queer woman.

Ignoring identity—an approach known as identity neutrality—is problematic for several reasons, Gutzwa says. “When a person is told that their identity doesn’t matter, it is often because there is a certain identity that pervades that space and that pervasive identity is different from the one the person has,” they say. In most physics and astronomy departments, the prevailing culture upholds the idea that the archetypal physicist is a white, cisgender man. When a woman or a queer person joins a research group full of archetypal physicists, for example, the experiences of this new person get dismissed as non-normative. The new person is then isolated and left feeling like they have failed in some way. “There is gatekeeping in physics” said study-participant Priyanka (pseudonym), a South Asian physicist who identifies as a heterosexual woman. “I am frustrated by [the] million microaggressions that I received as a woman.”

Some of the interviewees also reported experiences that crossed from marginalizing to abusive. Gutzwa says that they heard stories that were so distressing that they felt physically sick listening to participants share what had happened. The account of Sam (pseudonym) was particularly harrowing.

Sam is a white, nonbinary, queer woman who said that they had an extremely negative relationship with their PhD supervisor. During their studies, Sam’s advisor sent them email after email in which they detailed Sam’s failures as a person and a scientist. Sam embodied so much trauma from these emails, as well as from other interactions with their advisor, that they went on to suffer many of the symptoms commonly experienced by those who survive severe emotional domestic abuse. These symptoms included memory loss, anxiety, flashbacks, and emotional numbness. “[Sam’s] interview was

one of the hardest I have ever conducted, and I’ve been doing this for a long time,” Gutzwa says. “I found it very hard to keep it together emotionally; it was absolutely heartbreaking to hear what happened to them.”

So, what got Sam and the other interviewees through their PhDs? The study shows it was through supportive relationships they formed with peers or faculty or from interactions with social groups that they joined outside of their research groups or departments. While these groups and relationships varied in their memberships and goals, they all had one thing in common—participants could be their whole true self without fear of harassment or hostility. Gutzwa notes that being part of these groups did not stop the harassment the interviewees experienced, but it did provide them with opportunities to be seen and heard by their peers, and, importantly, to feel safe. For example, for Ethan (pseudonym), who identifies as a white, queer man, being part of an affinity group provided friendship and “everything that comes with, including emotional support,” he said.

Having learned about the support and validation these groups provided to the study participants, Gutzwa and their colleagues would like to see physics departments put money and resources into creating these spaces. So often diversity is thought of as a numbers game, with departments trying to attract women, People of Color, or LGBTQ+ folks so that they can claim they have “diversity,” Gutzwa says. But the culture of the department remains unchanged. Gutzwa would like to see the script flipped. “Just because a department has more women, for example, doesn’t mean the sexism has disappeared and it’s all sunshine and rainbows for every single one of those women,” they say. “But if we can create an environment where everyone can thrive, regardless of their identity, we will see a rise in the breadth and beauty of demonstrably talented physicists. That should be the goal.”

Katherine Wright is the Deputy Editor of *Physics Magazine*.

## REFERENCES

1. J. A. Gutzwa *et al.*, “How women and lesbian, gay, bisexual, transgender, and queer physics doctoral students navigate graduate education: The roles of professional environments and social networks,” *Phys. Rev. Phys. Educ. Res.* **20**, 020115 (2024).