

# Ableism Puts Neurodivergent Students at a Disadvantage

While undergraduate physics students that identify as neurodivergent report little outright discrimination or violence, they do say that structural ableism has negatively impacted their time as students.

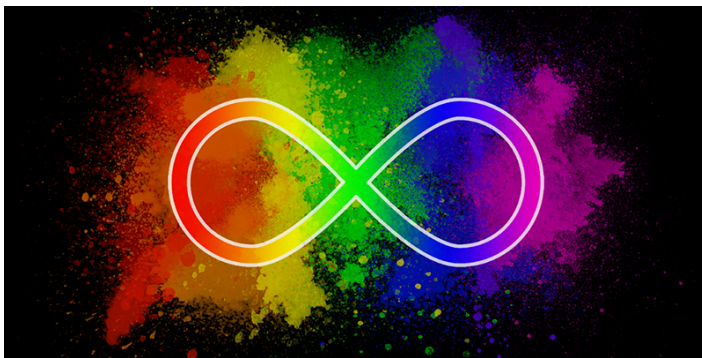
By **Katherine Wright**

Physics has a diversity problem: those with identities outside of the majority “able-bodied, white, cis, and male” face significant barriers to entry. While efforts in the US to level the playing field are beginning to show success, studies continue to find that minority physicists will likely experience some form of bigotry, bias, or barrier during their career that will hamper their chances of success. These inequities and biases range from skewed course structures that favor specific learning styles (see [Research News: Restructuring Classes Can Level the Playing Field](#)) to systemic prejudices that hinder some groups from gaining grants (see [News Feature: Systemic Racism Reflected in Grant Allocations, Researchers Argue](#)) to unconscious biases that lead to the significant undercitation of minority physicists

compared to their white, male counterparts (see [News Feature: The Uneven Spread of Citations](#)). All these factors can have serious career consequences, with negative experiences being a key factor driving people to leave the field.

One lesser-studied aspect of identity and how it impacts a person’s experience in physics is neurodivergence—a nonmedical umbrella term used to describe people whose brains process information in way that is different to what is considered normal. Now Geraldine Cochran of Ohio State University and Liam McDermott and Nazeer Mosley, both of Rutgers University, New Jersey, have developed a framework for interpreting the experiences of this group of people [1]. An initial analysis of interviews with three neurodivergent physicists shows that, while this group reports little outright discrimination or violence, structural ableism negatively impacted their time as students. “There are more neurodivergent people entering college than ever before,” McDermott says. “But their needs regularly get overlooked.”

A person who identifies as neurodivergent may have a neurological disorder, such as autism or Tourette’s syndrome; they may have a learning disability, such as dyslexia (which affects language processing) or dyscalculia (which affects number processing); or they could have a mental illness, such as depression or anxiety. For their study, Cochran, McDermott, and Mosley interviewed three physicists who identified as being neurodivergent and who pursued nonacademic careers after completing their undergraduate degrees. All three identified as having attention-deficit hyperactivity disorder (ADHD) and anxiety. Sky (the interviewees were all given pseudonyms) also has depression, Catalina has depression and dyslexia, and



Students who identify as neurodivergent are entering colleges in increasing numbers. Meeting the needs of this group of people requires putting in place more inclusive teaching structures and policies.

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Henry has epilepsy. The interviews covered the trio's undergraduate experiences. Cochran, McDermott, and Mosley then analyzed the trio's answers using their newly developed "Critical Disability Physics Identity" framework. This framework helped the researchers code answers by how they relate to the person's feelings toward their disability, such as their sense of self-worth or the way they perceive the level of discrimination, their identity as physicists, their sense of belonging and competence, and their access to resources—for example, mentors.

The analysis showed that accommodations that enabled Sky, Catalina, and Henry to learn or to be tested in a way that matched their cognitive abilities were a driving factor in how each of them rated themselves as physicists over the course of their studies. For each person, these accommodations were most meaningful when they came via one-to-one interactions with a professor. Sky, for example, tells the story of a professor who, instead of telling her she was failing by getting a D, told her she was doing just fine and then took the time to explain a concept in a way that aligned with how her mind worked through problems. Sky says, "He made me feel part of the community...that meant a world of a difference to know that somebody saw a physicist in me when I didn't, and so that was empowering." Meanwhile, Catalina credits her positive experience of physics at university to a professor who noticed her inability to finish tests and then provided appropriate accommodations.

This individualized approach to meeting the needs of neurodivergent people is a key takeaway of the study, McDermott says. The wide range of diagnoses that fit under the neurodivergent label means that there is no one-size-fits-all solution to ensuring that those who identify as neurodivergent can flourish and succeed in any environment, including that of a physics lecture hall. Cochran echoes that conclusion.

"Neurodiverse people are not a monolith," she says. "To make the classroom equitable for neurodiverse students, instructors need to understand individual student's needs and experiences."

They both acknowledge that the need for individualized approaches can mean additional hurdles to neurodivergent students getting appropriate accommodations. For example, McDermott says it could be tempting for a professor just to give everyone with a dyslexia diagnosis extra time in exams to complete questions. But if the neurodivergent identity of someone with dyslexia means that they think and communicate better when speaking, an oral exam—not extra time in a written exam—would provide a more accurate measure of their ability. This kind of individualized assessment requires "a complete design overhaul for many classes," he says. "There is no quick fix."

Cochran and McDermott say that they hope that their findings will increase awareness of the needs and struggles of neurodivergent students. "Instructors need to be cognizant that they might have neurodivergent students in their classes, and they need to try to put in place structures and policies that make everyone feel included," Cochran says. McDermott agrees. "Normative assessments only provide useful information about a person's ability if they think in a specific way or retain information in a specific way, and that leaves a lot of people out."

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

## REFERENCES

1. L. G. McDermott *et al.*, "Diverging nonlocal fields: Operationalizing critical disability physics identity with neurodivergent physicists outside academia," *Phys. Rev. Phys. Educ. Res.* **20**, 010111 (2024).