When I ask you to picture a physicist, who comes to mind? Perhaps it's one of the scientists immortalized in this famous photo. Maybe you imagine Einstein with his crazy, white hair, or Schrödinger and his cat? Yet, amidst these prominent "physics role models," there exists a stark reality: save for Marie Curie, they are all men. Research reveals a troubling trend: the prevalent image of a physicist as a white, socially awkward, cis gender, "super-genius," man. This stereotype takes root early, influencing children as young as six, particularly impacting girls, and shaping their educational trajectories. When the people you're supposed to look up to in physics aren't like you, it becomes challenging to envision yourself in the field.

In my research I study the gender gap in physics. Why? Because countless women and girls, just like me, feel a disconnect – a lack of representation that breeds isolation and exclusion, often leading to departure from the field altogether. It's like showing up to a party and being the only person who wore a costume. You feel all eyes on you, and you just want to get the hell out of there.

Women and girls are lost at various points along their educational journeys. The gender ratio shifts drastically from equal when physics is mandatory, to only one in five students being women in undergraduate physics programs. Girls stop studying physics for various reasons, including poor educational experiences, stereotyping, and a lack of encouragement. As a result, girls' self-confidence in physics suffers greatly - leading to a poor relationship with the discipline.

In my research, I set out to investigate how to enhance women and girls' relationships with physics. To do this, I analyzed survey responses from over 1000 students enrolled in first-year physics courses. Participants were asked to evaluate the effectiveness of various activities, such as science museum visits and physics experiments, in fostering a positive connection with physics during grade school. Through statistical analysis, I explored the relationship between these activities and shifts in students' attitudes towards physics over time, while also considering their gender. My findings confirmed that activities aimed at enhancing academic performance, nurturing interest, and providing positive reinforcement and recognition play pivotal roles in fostering positive relationships with physics. Moving forward, the challenge lies in empowering educators to incorporate these activities into their classrooms. Because…

Everyone, regardless of gender, deserves an equitable and bias-free opportunity to pursue physics education. Let's move away from this boys' club and more towards the representation we see in everyday life. You don't need crazy hair and a cat, dead or alive, to be here, because PHYSICS IS FOR EVERYONE!