

Latinxs in STEM:

Sonia Guimarães

Representation matters.

“Peace is not only the absence of war;
as long as there is *poverty, RACISM, segregation, and exclusion*
we cannot reach a world of peace.”

Rigoberta Menchú

LEARNING OBJECTIVES

This resource incorporates activities aligned to the following [Common Core Standards](#):

1. Reading Standards for Informational Text

- **Key Ideas and Details:** (1) Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text; (2) Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

2. Writing Standards

- **Text Types and Purposes:** (1) Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- **Production and Distribution of Writing:** (1) Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience; (2) Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

3. Speaking and Listening Standards

- **Comprehension and Collaboration:** (1) Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally; (2) Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

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Image of Guimarães from: *Catarinas.info* article featured in this lesson plan.

Before watching the *TED Talk*: Use your prior knowledge or take an educated guess to answer the questions below.

1. **“Representation matters” is a commonly used phrase; what does it mean?**
2. **Which communities are most often excluded or underrepresented?**
3. **In what fields or careers are these communities often excluded?**

<https://blackbraziltoday.com/sonia-guimaraes-first-black-brazilian-woman-with-a-ph-d-in-physics/>

4. <https://catarinas.info/a-violencia-contra->

While watching: As you watch producer and author Nikesha Elise Williams’s Ted Talk, “Representation matters,” answer the questions below and take notes on what you learn. https://www.ted.com/talks/nikesha_elise_williams_representation_matters

1. Williams shares one of the first experiences she had that made her aware of her Blackness; **describe what Williams experienced.**
2. How did Williams react to this experience?
3. Williams transitions to discuss the importance of Black women, and why their representation matters; according to Williams, **why does representation matter?**
4. Where is representation **not** happening or lacking?
5. Why is it dangerous and harmful to stereotype Black women? *Think about how stereotyping harms groups.*
6. How can we, as a society, undo the stereotyping of Black women and increase representation?



Image of Williams from: the *TED Talk* in which she spoke.



Name: _____

Date: _____

Sonia Guimarães

Predictions: Before you start reading:

- (1) read the title of the article,
- (2) read the headings and quotes in red throughout the text,
- (3) look at the images and read the labels next to each image, **and use this to make a prediction about the text:**



What will the article be about? _____

Who is involved in the article? _____

Where does the article take place? _____

When does the article take place? _____

Why is this article important? _____

After reading: answer the following questions based on the article written by Sonia Guimaraes.

1. In what ways has violence and prejudice impacted her, her students, and her career?

2. How does this text demonstrate prejudice?

3. How has prejudice and violence impacted Guimaraes?

Self-reflection: have you ever personally experienced prejudice or witnessed prejudice? Reflect on how this experience has impacted you.

CITATION:

Guimarães, Sonia. 2019. "Violence Against a Black Woman with a PhD in Physics [Translated from Portuguese to English by Google with edits made by LAll worker]." *Catarinas*, 12 July, <https://catarinas.info/a-violencia-contra-uma-mulher-negra-doutora-em-fisica/> ***images are from this source unless otherwise indicated***



Violence Against a Black Woman with a PhD in Physics

by: Sonia Guimarães. 12 July 2019

My name is Sonia Guimarães, I am a professor of experimental physics at the Technological Institute of Aeronautics, ITA, in São José dos Campos (see map below).

I always loved studying, especially math; one of my Christmas gifts when I was about ten was a chemistry game. I started to like physics in the course for the entrance exam. But I was always the second best in the class — at least until I entered university. After graduation, I went straight to a master's degree program and then went on to do a doctorate in England — where the doctorate degree is called a *PhD - Philosophiæ Doctor* — which made me the first Black doctor in physics in Brazil. I was also the first Black woman to teach physics at ITA, and they never forgave me for this.

My whole life I had someone telling me: “you will never understand physics” — my physics teacher from Elementary II; “you will never use physics for anything” — professor responsible for scholarships in science at the Federal University of São Carlos, where I studied. Needless to say, my request for this scholarship was denied.

Well, after my studies, I joined the competition to be a teacher at ITA, and I ended up in 2nd place. Following this competition, I accepted a position at ITA as the first woman to assume this position, in 1993. In my 3rd year, a colleague came into my room with my student evaluations that said that I was the worst teacher at ITA, and that my clothes called a lot of attention to my body. And, for this reason, my colleague told me, I was being transferred to the Institute of Aeronautics and Space, the IAE. [ITA and IAE are two of the four institutes of the Brazilian Department of Science and Aerospace Technology, DCTA.]

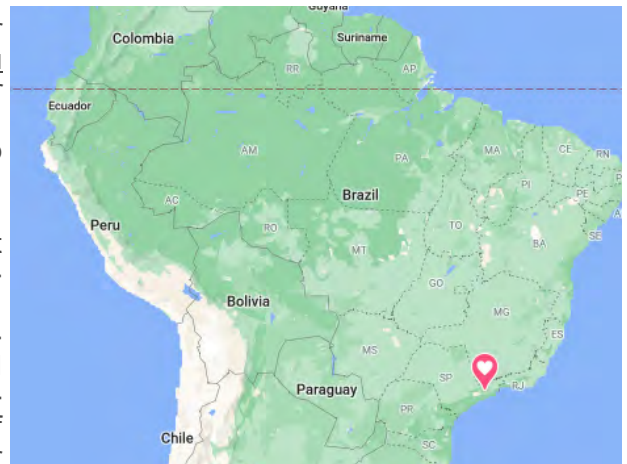


Image from Google Maps. The Technological Institute of Aeronautics (ITA) is located in the state of São Paulo, Brazil.

This constitutes violence as this exclusion destroyed my career because after 26 years of ITA, I am still an “adjunct professor III.”

In other words, I was being removed from my teaching position and had to complete a public exam in order to be a researcher at another institute. I tried to speak to my colleagues but the dean would not meet with me. The vice-chancellor said that there was nothing I could do, because I was being fired and that the best thing I had to do was leave. I tried to speak with the director of the Aeronautical Technical Center, CTA, and

he would not meet with me either. There was an ITA lawyer, who seemed like he was helping me, but in the end he wasn't. A colleague of mine who competed with me told me that I had better give up and go to the IAE, so I did.

In the more than ten years that I stayed at the IAE, my research was published in several national and international journals — I even have a patent pending, but all these years of my hard work were rewarded only with the small promotion of Deputy I to II. In these more than ten years, ITA cut my salary in half because I was not teaching. When I complained — because, after all, I wasn't teaching because they would not allow me to — nobody would meet with me, and then I filed a lawsuit and went back to receiving my salary, but without any of the promotions I should have received.



Sonia during class at Embraer College / Photo: Personal File

Do you realize how hard that I, a Black woman, scientist, doctor, have to work to receive notoriety or promotions, be able to travel abroad? Or even to just have success and prestige with my work? And, do you realize the violence being done to hinder me?

How was my life at IAE?

Again, I was the only Black woman. For conferences in Brazil, I had no problem; I was able to go to all of them. But then I had an article accepted for a conference in Portugal. In this same period, the Brazilian Space Agency, AEB, needed assistance to judge requests for research assistance — work that has no extra resources. In other words, you do not get paid for this, and you did not receive any special promotions. So, in short, nobody wanted to do it; so, who did they send? Me.

Well, when my work was accepted and I needed resources to go to Portugal, I asked AEB if they could help me. And they did, promptly, with travel, daily expenses, everything! However, when my boss found out, he was very angry, and called AEB, asking for explanations as to why only I could go. And, AEB replied “only Sonia accepted to be our advisor.”

The following year, my article was accepted for one of the most important conferences in our field (in Boston, USA). I asked for resources from the aeronautics department. When the manager of my project saw that it would be me who was traveling, he flipped out; he left the corridors of the department threatening that if I went to Boston, he would no longer be the project manager.

So, I didn't go to Boston, he stopped being a manager, he tried to close the project, but he didn't succeed; I became a manager, the next year I went to Paris, to characterize the background of my project's devices, and the next year I went to Utah, in the United States, to present our research at one of the main aeronautics conferences in the world. The article I presented there was the work with the greatest impact factor at the State University of São Paulo - Campus Guaratinguetá. Impact factor on how important a scientific article is.

My project at the IAE ended, I went back to teaching at the Electronics Department at ITA, but only for six months, the other six months they did not need me. So, I asked to go work on a post-doctorate with a *Sem Fronteiras* [Without Borders] scholarship — a request that they didn't even bother to decline because they never even answered me. By this time, the person who did not want me in physics retired, and I went back to teach there in 2010.

In my first year of return, we had three articles accepted at three very important conferences, but of course I didn't have the resources for me to go and present them. For context, one of them was about 80 km [50 miles] from São José dos Campos. However, the school had the resources to pick up an international teacher at the airport, which was about the same distance.

In the meantime, a white male teacher, a former student of ITA, who graduated first in his year, had the same evaluation as mine of the students. Was this professor fired? No, he went on to complete a post-doctorate in Germany.



Registration after lecture at the Federal University of Sao Joao Del Rei / Photo: Personal File

As if violence were not enough, the ex-coordinator of the course I am teaching this semester is boycotting my course. I could have retired in August, but I only teach classes for the 1st year, in the 2nd semester, and this is the 1st year of racial quotas at ITA, and I wanted to teach classes for the Black students who entered. Well, I asked the students to do a certain task, and the coordinator told them not to do it. One class did a great job so I gave them a good grade, but the other class did nothing so I gave them a low grade; however, the coordinator forbade me to evaluate those who had done nothing.

Naturally, this led to an argument between us, and ultimately he resigned as coordinator. So, I applied for the position, but guess what! I can't be a coordinator. Even the lab technician, who witnessed my entire discussion with the former coordinator, refuses to arrange my students' schedules when I ask. After I reported him to the head of the department, he calmed down some but shouted that he had no obligation to help me.

And my colleague — who is in charge of the course website — refuses to place my classes or to make themselves available to my students. All of these issues in one year (2019). My friends outside of the institute ask me what it's like to teach at a racist and sexist institution, I answer **"THEY HATE ME."**

People say that I'm lying. A former student of mine wrote about me online; her post began by identifying herself as Black, and goes on to say that the problem they [the institute] have with me is not based on my skin color or because I am a woman, but rather because "I am the worst teacher that she has ever had in her life."

After the movie *Hidden Figures* was released, which tells the story of NASA's human computers that were Black mathematical women, a daring search for pioneer Black women began and my name came up. With this recognition, I became famous, and I have since been giving lectures throughout Brazil. However, there is an upcoming women-led conference at ITA planned for March 2020, yet no one thought of inviting me to be part of the organizing committee — let alone to give a lecture. However, I have been invited for social activities like coffee breaks. One day, one of the teachers came to ask me to join them. I responded by asking that if they wanted me around, why didn't they invite me to join the organizing committee for the women-led conference? Answer: "since they are new to ITA and they don't know me, I shouldn't be asking this type of question."



Visit of students from Uirapuru school to ITA / Photo: Personal File

Do you think this is violence against a Black woman, to be excluded, and treated as a second class citizen?

Are these new girls worried about me?

Wouldn't this be a kind of subtle violence, in which I would have to fit in just because they want to?