Diversity and Physics Education
Race, Gender, and Sexual Minorities in Physics

Katemari Rosa
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The Orlando shooting grew out of everyday homophobia – we cannot be complacent

RUTH HUNT
STONEWALL CEO

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Brazil Is Confronting an Epidemic of Anti-Gay Violence

Despite a storied image as a tolerant, open society, Brazil is, by some counts, the world’s deadliest place for sexual minorities.

By ANDREW JACOBS
 Após ato racista e homofóbico, UnB condena ofensas e vai apurar caso

Yara Aquino - Repórter da Agência Brasil

A reitoria da Universidade de Brasília (UnB) manifestou hoje (20) repúdio ao protesto ocorrido no campus da universidade na noite sexta-feira (17) em que estudantes foram alvo de ofensas homofóbicas e racistas. Em nota, a reitoria informou que atos de natureza agressiva são devidamente apurados e que continuará o trabalho incessante de promoção de ações de tolerância, respeito e não violência na UnB.

“A reitoria da Universidade de Brasília reitera a postura de respeito ao direito à diversidade nos seus quatro campi e repudia qualquer ato de intolerância e de agressão”, informou a universidade. E acrescentou: “As ocorrências de natureza agressiva e intolerantes são devidamente apuradas e, quando se trata de ações que extrapolam a alcada administrativa da universidade, os órgãos competentes são acionados.”

Como foi

Fachada do Centro Acadêmico de Sociologia da UnB, no Instituto Central de Ciências (ICC), onde ocorreu a manifestação  Wilson Dias/Agência Brasil

”After racist and homophobic protest, University of Brasília condemns offensives and will investigate the case”
Assassinato de estudante negro e gay no Rio escancara intolerância na universidade

Diego Vieira foi encontrado morto com sinais de espancamento e seminu no campus da UFRJ

Diego Vieira Machado, de 29 anos, morreu assassinado no último sábado, dia 2, no campus da Universidade Federal do Rio de Janeiro (UFRJ). Seu corpo apareceu às margens da Baía de Guanabara, nu da cintura para baixo, sem documentos e com sinais de espancamento e um golpe na cabeça. A morte de um negro, gay e bolsista não só chocou o campus, que reclama há tempos da falta de segurança e iluminação, mas revelou a existência de ameaças à comunidade negra e gay da universidade. “Se confirmar que se trata de um crime de homofobia será a confirmação de que vivemos um período de retrocesso na garantia dos direitos civis da população LGBT”, alertou o secretário estadual de Assistência Social e Direitos Humanos, Paulo Melo.

“Murder of Black and gay student in Rio shows intolerance at university”
Professores homossexuais são assassinados e corpos são queimados no interior da Bahia

Os professores da rede estadual de ensino da Bahia, Edivaldo Silva de Oliveira e Jeovan Bandeira, eram queridos na cidade de Santa Luzia, a 260 quilômetros de Salvador. Na última sexta-feira (10), eles foram mortos às margens da rodovia BA-120. Os corpos deles foram encontrados carbonizados no porta-malas do carro de Edivaldo. O corpo do professor Edivaldo foi reconhecido pela arcada dentária e o de Jeovan ainda passará por exames de DNA, mas a família disse que é ele.

”Homosexual teachers are murdered and their bodies incinerated in Bahia”
Workshop on Professional Skills for Young Scientists

- Physics and Scientific Identity
- Black women in Physics
- Sexual minorities in Physics
- Implications
- Resources
Where I am coming from
Key concepts

• **Intersectionality**

  Limitation of not looking at the intersections of race, gender, and sexuality.
Key concepts

• **Identity**
  
  • Identity as fluid, dependent on contexts, and on how one behaves within a context. People will perform different identities in different situations.
  
  • Scientific identity: interplays of other identities plus performance, competence, and recognition as a scientist.
Key concepts

• Microaggression

Racial microaggressions are everyday interactions that send harmful messages to people of color; they are subtle, constant, and insidious racist attacks.
I will use the term "sexual or gender minorities" to include anyone who feels marginalized based on their sexual orientation, gender identity, or gender expression, including but not limited to lesbian, gay, bisexual, trans, queer, questioning, intersex, or asexual persons.
Climate in Brazilian universities
Hashtags!

- #MyTeacherSaid
- #MySecretTeacher
- #MySecretTeacherSaid
- #ThisIsMyTeacher
If I were you, I would change major.

Physics is for men.
MyTeacherSaid

I will give you an easier exam because you are a woman.

You are as beautiful as stupid.
You are a woman, you should know how to cook.

You are still about to get raped.
Do you want Black colleagues that know nothing?

You need to study more because of where you were born.
Did your grandma die? Bring me the death certificate, but you will fail anyway.

I am not going to change my classes to poor students who live in the slums.
#MySecretTeacher
Asks if those who stretch their ear are also willing to stretch other things
In your classroom, there are many pretty women, but it is unfortunate one can look at and not touch them.
Feminism is a [female genitalia slang] market
I thought women would not be able to do this activity. Women only get into college to find a husband.
A Physics teaching degree is for women who fail in a Physics research degree.

I need two Master students, an intelligent guy and a pretty girl to carry my books and to serve me coffee.
Depending on me, you won’t graduate
*threat after a going out invitation

You are girls, you are slower. Only you didn’t understand, so I’m not going to explain it to you
Turing is the mother of computer science

Finding it hard? So go take ballet instead
Open Threats

Death to gays at Federal University of Rio de Janeiro
For over 2 years we have been suffering abuse, there is a faculty we cannot name who is using his power to harass female students. He has even said: “If any student would go out with him, he would pass all other students.”
"Several students were victims of racism, LGTB-phobia, prejudice, sexual harassment, and religion intolerance. It got to the point the teacher to ask: "If the student got late, it’s because she was in the senzala [place where slaves were kept captive]." [...] over 30 complaints were made against this teacher."
Trans people’s experience

Great things about being trans in academia:
I’m here with my abstract ready to submit to the system but I haven’t done it yet because no one has answered my emails about being allowed to use my real name in the system.
Sexual minority in Physics
Where people and particles collide

Mar 3, 2016  6 comments

Taken from the March 2016 issue of Physics World

What’s it like to be in a gender or sexual minority at CERN, one of the most multicultural labs on the planet? Louise Mayor reports
LGBT Climate in Physics – APS report

- 15% LGBT men
- 25% LGBT women
- 30% gender non-conforming
"For many years, I was quietly out. I didn't see the two [being gay and being a physicist] as being related. There is something slightly countercultural about being a physicist. Like many physicists, that aspect of my identity was quite strong. I saw my identity as a gay man as somewhat coincidental.

I've really shifted my view. **What motivated me to become an activist was when I was teaching advanced quantum mechanics** at Case. At the end of the semester, one of my students emailed me. He said something like, "Thank you, Professor Atherton, for being an out professor. You've given me the courage to stop living in silence." My first reaction was, What, I'm out? My second reaction was that every student—not just LGBT students—deserves to have empowering experiences from classes. And there are multiple ways we can empower our students. I would say that was a critical event in my life."

LGBT Climate in Physics – APS report

- 31% LGBT men
- 44% LGBT women
- 67% gender non-conforming
### Academic environment

#### EXPERIENCE OF HARASSMENT

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>LGBT Men</td>
<td>11%</td>
<td>89%</td>
</tr>
<tr>
<td>LGBT Women</td>
<td>31%</td>
<td>69%</td>
</tr>
<tr>
<td>GNC</td>
<td>42%</td>
<td>58%</td>
</tr>
</tbody>
</table>

LGBT = lesbian, gay, bisexual, transgender as well as other sexual and gender minorities

GNC = gender-nonconforming

LGBT Climate in Physics, APS, 2015.
Academic environment

Transgender and gender-nonconforming physicists encountered de most hostile environments

LGBT Climate in Physics, APS, 2015.
"It is my impression that faculty are intolerant and silent bystanders towards LGBTQ students. Upon hearing comments made by faculty I know there are negative attitudes and stereotypes towards LGBTQ people and people of color."

LGBT Climate in Physics, APS, 2015.
Think about it...
Intersectionality

The intersection of race, gender, and sexual orientation hinders the social integration of Black women and sexual minorities in academia and exposes the racism amongst students in STEM departments.
Intersectionality

There are no possibilities to shift the racialized gender experiences Black women face to solely gender experiences. Similarly, we cannot isolate sexual minorities experiences in STEM without looking at the intersections of race and gender.
Scientific identity

The performances expected by the scientific community for those entering STEM fields is the one that mimics this predominantly White, male, and heterosexual environment. Black women and sexual minorities embody precisely the opposite. These groups might face more obstacles to achieve the recognition component of scientific identity.

[recognizing oneself and being recognized by others]
Microaggressions

Experiences of surprised looks from colleagues and teachers, differential treatment, and being outnumbered in a classroom send to young women of color and sexual minorities the message they are out of place.

Adding to this is an absence of representation of Black women, gender and sexual minorities scientists in the media, textbooks, and lesson plans.
Collectively, these microaggressions create an environment that teaches young Black girls, gender and sexual minorities that they do not belong in science and are not welcomed to pursue careers in STEM.
What can we do?
Implications

- Physics Education Research
- Educational policies
- School and academic practices
- Physics classrooms
Start to think about how Race, Gender and Sexuality may play a role in our research. Are we taking these social constructs and identities into account when developing our studies?
Educational policies

• Promote scholarships targeted to support racial, gender, and sexual minorities.

• Support, in a broader context, legislations that protect and promote rights of these groups.
School and academic practices

Promote inclusive practices for racial, gender, and sexual minorities.

Accommodate name changes in publications, school and classes materials, when needed.
School and academic practices

Promote the creation of interest/support groups for racial, gender and sexual minorities.

Address the need of gender neutral restroom facilities.
Physics classrooms

Select materials (e.g. textbooks) that do no reinforce racial and gender stereotypes.

Rethink about in which way language, comments, and jokes made in class are promoting prejudice, racism, sexism, and/or LGBT phobia.
Physics classrooms

Lesson Plans: Women in Physics, Astronomy, and Related Disciplines

Lesson Plans: African Americans in Physics, Astronomy, and Allied Sciences

Discuss the participation of racial, gender, and sexual minorities in Physics.

American Institute of Physics - AIP

National Organization of Gay and Lesbian Scientists and Technical Professionals - NOGLSTP
Finally...
The National Organization of Gay and Lesbian Scientists and Technical Professionals is a professional society that educates and advocates for lesbian, gay, bisexual, transgender, and queer students and professionals in science, technology, engineering, and mathematics. They have a scholarship program!

http://www.noglstp.org
Prisma is a recently formed group that aims to promote activities and discussions in order to transform UFMG’s Instituto de Ciências Exatas (ICEx) da UFMG into a safe and welcoming environment for the LGBT community.

www.facebook.com/Prisma-603587806483371
A report produced by the American Physical Society Ad-Hoc Committee on LGBT Issues (C-LGBT) reviewed the status of LGBT physicists to assess the barriers to full inclusion within the physics community. The document is available online.

Check this out!

I Encontro Brasileiro de mulheres Negras nas “Exatas”

- July 27-28, 2020
- Salvador, Bahia, Brazil
- Federal University of Bahia

I Encontro de Mulheres LBT em STEM - 2020

- Salvador, Bahia, Brazil
- Fundo ELAS, British Council, UN Women, Global Fund for Women, Ford Foundation, Open Society Foundations, Oak Foundation, Ibirapitanga, and Women's foundation of Minnesota
What else can we do?

Comence de Novo.

Por onde? Por dentro

Thank you!
Resources

lgbt+physicists
http://lgbtphysicists.org

APS Page on LGBT Physicists
http://www.aps.org/programs/lgbt

AIP - Teaching Guides on Women and Minorities in the Physical Sciences
https://www.aip.org/history-programs/physics-history/teaching-guides-women-minorities

oSTEM: Out in Science, Technology, Engineering, and Mathematics
http://www.ostem.org

Prisma – LGBT group at Instituto de Ciências Exatas (ICEx) UFMG, Brazil
www.facebook.com/Prisma-603587806483371

Negras e negros nas ciências – Blacks in science Facebook group, Brazil
www.facebook.com/groups/negrasenegrosnasciencias