

Feminist Physics: Further Resources

Creating a more equitable physics means always learning more about how we as individuals, groups, and a science can be better. That means learning about inequity on systematic and interpersonal levels, implementing new tools to improve accessibility and accountability, and letting the facts we and others identify about the way the world is change the way we operate.

Here's a list of resources to get you started.

Reading

Pythagoras' Trousers - Margaret Wertheim.

A historical account of how European science, especially physics, developed *with* the Catholic church, and how this built the exclusion of women into science as it came into existence. Wertheim is a white historian/sociologist of science, with more recent interests in the utility of crocheting for mathematical and coral reef modelling.

“‘Physics’ is a Bad Model for Physics” - Sandra Harding, in *Whose Science? Whose Knowledge?: Thinking From Women's Lives*.

A detailed account of several ways idealized notions of physics (and science more generally) don't account for real interactions of science and society. Harding is a well-known white academic in science and technology studies and feminist philosopher.

Objectivity and Diversity: Another Logic of Scientific Research - Sandra Harding.

Presents an argument for feminist standpoint methodologies, including the notion of strong objectivity---an objectivity which considers the context in which the research is done as relevant, and which uses values like justice and equity to inform research practices.

Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants - Robin Wall Kimmerer.

Social, personal, historical, and botanical study of the interactions of Indigenous knowledge and Western science. Kimmerer is Indigenous and a Western-trained botanist.

The Structure of Scientific Revolutions - Thomas Kuhn and/or

The Genesis and Development of Scientific Fact - Ludwik Fleck

Kuhn's work is a staple of philosophy of science, heavily inspired by Fleck's much earlier book. Both books provide a conception of how knowledge develops and is accepted within communities. Not especially feminist, but nonetheless an excellent conception of how knowledge is centralized in expert communities. Plenty of food for thought about how we as physicists should or should not expect people outside of our educated

community to trust us. Fleck and Kuhn were both white men; Kuhn was a very influential philosopher of science. Fleck was mostly known for his microbiology. Content warning: Fleck studies the development of testing for syphilis as his primary example.

Policing Black Lives - Robyn Maynard

A contemporary study of anti-Black racism in Canada, from our history of slavery to our current state of disproportionate violence against and incarceration of Black Canadians. Addresses how the conception of multiculturalism in Canada allows many to avoid acknowledging the reality of Canadian racism. Maynard is a Black feminist activist.

Unsettling the Settler Within: Indian Residential Schools, Truth Telling, and Reconciliation in Canada - Paulette Reagan

Analysis of an attempted process of reconciliation of Canada with the Gitksan people from a white settler who participated in it. Reagan tells some important and brutal history of Canadian residential schools, analyzes the contrast of this reality with the widespread idea that Canadians are polite peacekeepers, and offers much wisdom to non-Indigenous folks looking to reconcile themselves with this reality and move towards a more just future.

“What Makes a Volcano Sacred?” - Adrienne LaFrance, in *The Atlantic*.

theatlantic.com/technology/archive/2015/10/what-makes-a-volcano-sacred/413203/

An article looking at both sides of the Thirty Metre Telescope and Mauna Kea controversy. Provides a brief review of the history of Hawai'i, a colonized nation. LaFrance is a white woman and the editor of The Atlantic.

“We Live in the Future. Come Join Us.” - Bryan Kamaoli Kuwada.

hehiale.wordpress.com/2015/04/03/we-live-in-the-future-come-join-us/

An account of the importance of history in the lives of native Hawai'ians and the utility of acknowledging place, history, and relationships with humans and their environment in sustaining them into the future. Find links to more discussions relevant to the TMT issue at the end of the article. Kuwada is an Indigenous Hawai'ian and an academic in English.

Living a Feminist Life - Sara Ahmed

Personal and theoretical investigation of feminism: where it comes from, how it interacts with one's life, and how to use it to survive and grow. Ahmed documents how one learns about the world by trying to change it. Ahmed is a feminist queer writer of colour and is well-known as a feminist killjoy.

More suggestions:

1. Dr. Chanda Prescod-Weinstein's Decolonizing Science Reading List. medium.com/@chanda/decolonising-science-reading-list-339fb773d51f
2. FemPhys Library. uwaterloo.ca/femphys/resources/library
3. FemPhys Resource List. uwaterloo.ca/femphys/resources

Toolboxes

When we learn about injustice, we often wonder what we can do. Some of these toolboxes might not seem on first glance to address serious problems, but the application of these tools can help us prevent and respond to problems with access, harassment, and inclusion. As we incorporate tools like this into our science practice, we become better able to address larger and larger problems.

Equitable Meetings

As a frequent location where social dynamics interact thoroughly with work, meetings are a great place to work on equity. Key here is that making a meeting efficient and useful also helps make it equitable, by ensuring everyone is able to contribute to the work at hand. Here are several rich tools to assist that work.

Time-keeping and agenda-setting

Set an agenda. The chair or facilitator decides what must be discussed (with input or adjustments from participants), and sends out that list *in advance* of the meeting. When meeting participants are informed of meeting content in advance, they can come better prepared and be better able to respect their own time by knowing whether or not they need to be present.

Keep time. Decide how much time each topic needs in advance. The facilitator or dedicated time-keeper lets the room know when the discussion has reached its allotted time. Keeping meetings on time means that all topics can be covered (respecting participants' efforts on those topics) and that you finish as scheduled (respecting participants' time).

Facilitation

Ever had a meeting where one or two people dominate the entire conversation, where you never seem to reach agreement, or where you kept wanting to say something but were interrupted or ignored? Facilitation aims to address these and more issues.

The facilitator is usually the person who designed the agenda for the meeting. At the very least, the facilitator makes sure the agenda items are addressed, and that the group sticks to the timetable laid out in the agenda. This could mean telling participants when they are off task, tabling discussions or agenda items when it becomes clear that more discussion is needed than time allows for, and adding agenda items which were forgotten. The facilitator of the meeting orchestrates decision-making tactics. They suggest specific tactics like go-arounds, brainstorming, voting, etc., and ensure they run smoothly.

A more advanced facilitator draws consensus out of what participants are saying, and maintains an equitable group dynamic. This means recognizing when participants want to speak, but are unable or are not being heard; recognizing the mood of the room (are people engaged? displeased? tired?); identifying points of disagreement or stagnation and offering solutions like moving on for the moment or taking a break; restating the goal of the meeting, rephrasing what participants say to ensure they are heard and understood, and synthesizing the content of the discussion in brief out loud.

Refs:

1. A short guide to facilitation. seedsforchange.org.uk/shortfacilitation
2. A long guide to facilitation. seedsforchange.org.uk/facilitationmeeting

Minute-taking

There are many reasons why remembering what happened in a meeting is useful, and many reasons why participants might not remember things later. Maybe they weren't able to pay attention to the whole meeting (they had a bad day, have ADHD, have depression, etc.), maybe they couldn't follow everything because they're hard of hearing, maybe they had to miss the meeting because they were ill or busy. Providing minutes means people are better able to participate regardless of what form they participate in.

Minutes should cover all essential information from a meeting, especially action items (and who they are assigned to) and any decisions made. They don't need to contain everything said in the meeting. Discuss with other meeting participants and ask yourself: what would I want to know if I missed a meeting? Are the notes we have thorough enough? Can someone follow along just with the minutes?

Refs:

1. A short guide to taking minutes. seedsforchange.org.uk/minutes

Accessibility

First and foremost, do not assume everyone attending your meetings has the same accessibility needs and participation ability. Many disabilities are invisible. Ask participants explicitly if there are access issues they need addressed.

Several accessibility actions help everyone in a meeting. Providing minutes can help Deaf and hard of hearing folk; they also help people who were unable to attend. Taking a break in long meetings helps ADHD folk and others with sensory issues manage sensory input; it also helps everyone's focus and energy. Having the facilitator summarize the discussion helps those who had some trouble following the entire discussion; and it reminds everyone where they are at.

Many access issues are around space. Make a habit of booking wheelchair-accessible spaces and pushing your administration to make more of these spaces available. Think about other

issues: is there a loud fan in the room? Are the fluorescent lights flicker-free (helpful for those with migraines and sensory issues)? Are the chairs comfortable? Is there room to re-arrange tables for participants? Are there gender-neutral and accessible washrooms nearby? If a space doesn't meet a particular access requirement, let participants know in advance so they can be better prepared.

Refs:

1. A facilitator's guide to making meetings accessible. seedsforchange.org.uk/accessiblemtg
2. FemPhys access information. uwaterloo.ca/femphys/access

Providing and Responding to Criticism

What do you do when you hear someone using a slur? Hear a friend misgendering someone? See a peer interrupting others? What if you're the one doing those things---how will you know? The road for all of us on a path towards equity is full of learning opportunities. To access them, we need to be able to provide and respond to criticism and feedback.

Providing Criticism/Feedback

You've identified some behaviour as problematic. How can you communicate that effectively? To be honest, this is a really difficult question, and the answer changes depending on so many factors: your relationship with the person you're critiquing, their knowledge, your knowledge, power differentials, the severity of the behaviour, the context in which you observe it. Use these tips to help.

- Were you or somebody else directly affected by this behaviour? Consider how to alleviate the stress of responding to a hurtful incident. Ask for help from friends and allies, pay attention to your needs, and remind yourself that your response is legitimate and worthy of attention.
- Pick a space that works - it might be in the moment, it might be in a private chat later.
- Be clear and concise: identify what they said or did and what its impact was.
- If you can, ask them to do or change something specific.

Receiving Criticism

The CLAIM framework is a frankly excellent tool for when someone tells you that you did something wrong.

Centre yourself. This feedback is not about whether you're a good person. It's about a behaviour (and an associated thought pattern) that you can change. It's about the impact that that behaviour has had. You're ok. Ground yourself.

Listen. Focus on whoever is speaking. Trust them---especially if they were personally affected. They're the expert on their own experiences, and their experiences are important.

Acknowledge. You made a mistake. Own it. Not, "I'm sorry you feel that way," but, "Yes, I said that, and I see it's had a negative impact on you."

Investigate. Sometimes, it'll be appropriate to ask how you can do better---especially if this person is a friend. Sometimes, it'll be appropriate to do research later.

Move on. Implement the changes you've been suggested. Check in with yourself to see whether you're using this opportunity to grow and become a better person.

Codes of Conduct

We all know that harassment exists in physics. One way to address this is to implement a code of conduct in your research group, institution, or student organization.

What is it for?

Codes of conduct aim to provide

- definitions of harassment and unacceptable behaviour, so that
 - people are better able to identify when something happens to them and validate themselves, and
 - people can reference a document that harassers should know about when their behaviour is identified as harassment;
- actionable frameworks to respond to harassment, including
 - people to reach out to for assistance (such as a supervisor or other community manager);
- general expectations of behaviour, including
 - general participation,
 - acceptability of self-care, and
 - not harassing people.

Why should my research group have a code?

Many institutions have policies on sexual violence---Ontario institutions are now required to by law. What these policies often don't include are specific expectations for behaviour (especially with respect to harassment, which is often set apart from assault), local and low-intensity ways to respond (e.g. chatting with your supervisor about an issue rather than going to the small handful of employees who deal with sexual violence or conflict management on campus), or potential consequences for harassment within communities of classes or research groups.

Having your own code means building a part of your community. It provides an actionable framework for accountability. It builds trust, through use, of those who have experienced harassment and sexual violence within physics.

On race-based harassment

Most focus on harassment in physics (and in society more generally) has been on gender-based harassment. This form of violence is, of course, rampant and deserving of a great deal of attention---but so is race-based harassment, which has received very little attention. Codes of

conduct (and other preventative/responsive measures) must also identify and address racial violence. This means, at least, making sure it is explicitly against the code of conduct, providing examples of racial harassment, and considering the ways that responding to racial harassment may be different than to sexual harassment.

Specific things to consider:

- Currently, racism is talked about far less than sexism in STEM. That means many people who may be willing to listen to some issues will not be so willing to talk about racial harassment.
- There are generally many more options of recourse available to those who experience sexual harassment. Identify the ways that your institution is lacking in resources for racial harassment specifically and try to provide those resources, and work with those who are trying to make them happen (e.g. Black and other student of colour organizations, PIRGs, student politicians).
- There are far fewer Black physicists than women physicists in Canada. Most racial groups are severely underrepresented. This means fewer social supports. Seek out and connect your students with on-campus groups who may be able to provide these supports. Understand that this often leads to more isolation, which can correlate with not identifying or addressing harassment. Check in with your students of colour often.
- If you are a white physicist, you have a lot to learn about racism. Full stop. You must do this work to better your own behaviour and your environment.

Useful examples

All of these examples are available for use and modification.

- FemPhys Code of Conduct. uwaterloo.ca/femphys/code-of-conduct
- Geek Feminism Wiki Code of Conduct. geekfeminism.org/about/code-of-conduct/
- Research group Code of Conduct, forthcoming on barrio-rqi.org