

# REFLECTION AND ACTION PATHWAYS TOWARDS EQUITY, DIVERSITY AND INCLUSION



**CANADA EXCELLENCE  
RESEARCH CHAIR IN  
LIGHT-MATTER  
INTERACTIONS**

**DOCUMENT PRODUCED BY:**

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## CHAIRHOLDER'S MESSAGE

As Canada Excellence Research Chair (CERC) chairholders, we have the resources and the opportunity to set the bar for meaningful progress in EDI issues in Canada. Indeed, the CERC Program required an extensive EDI action plan that includes a literature review, analysis of consultations, targeted fields of action and precise indicators.

I hold firmly the conviction that EDI is an effective tool to guide the overall CERC Program, touching all of its pillars, including research, training and knowledge transfer and that it is a necessary element in ensuring excellence.

### **Carlos Silva Acuña**

Full professor  
Director of the Institut Courtois  
Université de Montréal



## EDI COORDINATOR'S MESSAGE



It is a great pleasure to share this document of Reflection and action pathways towards equity, diversity and inclusion with the research community. When I started working on this project in March 2024, I wanted to produce something practical and understandable for the research community. I think it is mission accomplished. I hope that the actions and metrics presented will inspire you to undertake innovative initiatives.

### **Mirjam Fines-Neuschild**

EDI Principal Coordinator for the Canada Excellence Research Chair in Light-Matter Interactions  
Université de Montréal

## DEAN'S MESSAGE

This plan echoes the Faculty of Arts and Science's vision statement on equity, diversity, and inclusion. This statement, supported by Dean Frédéric Bouchard, can be found on [the Faculty's website](#).

The Université de Montréal invites its entire community to reflect on these issues and ways to change our practices: how can we make our campus a caring and welcoming place for people of all backgrounds? How can we move from tolerance to acceptance to the full participation of all in an atmosphere of respect and openness? How can we better reflect these lessons in our teaching and research? These are all questions that demand our attention.

### **Frédéric Bouchard**

Dean, Faculty of Arts and Sciences  
Full professor  
Université de Montréal



*From left to right : Delphine Bouilly (UdeM), Alejandro Adem (CRSNG), Frédéric Bouchard et Carlos Silva.*

## RESSOURCES À L'UDEM

As mentioned in the Dean's message, the CERC's EDI actions on light-matter interactions are in line with institutional efforts as those led by the Faculty of Arts and Sciences, whose website presents its [EDI vision](#) and the [initiatives](#) carried out by the Faculty and associated departments.

In addition, the Université de Montréal provides many resources and information on equity, diversity, and inclusion, available on the [Riches de notre diversité](#) page. The University's EDI approach is outlined in the document [Équité, diversité, inclusion et appartenance - Plan d'action 2024-2029](#), which builds on previous efforts outlined in [Pour l'équité et l'inclusion Plan d'action 2020-2023](#).

We invite those interested to consult the documents and resources cited.

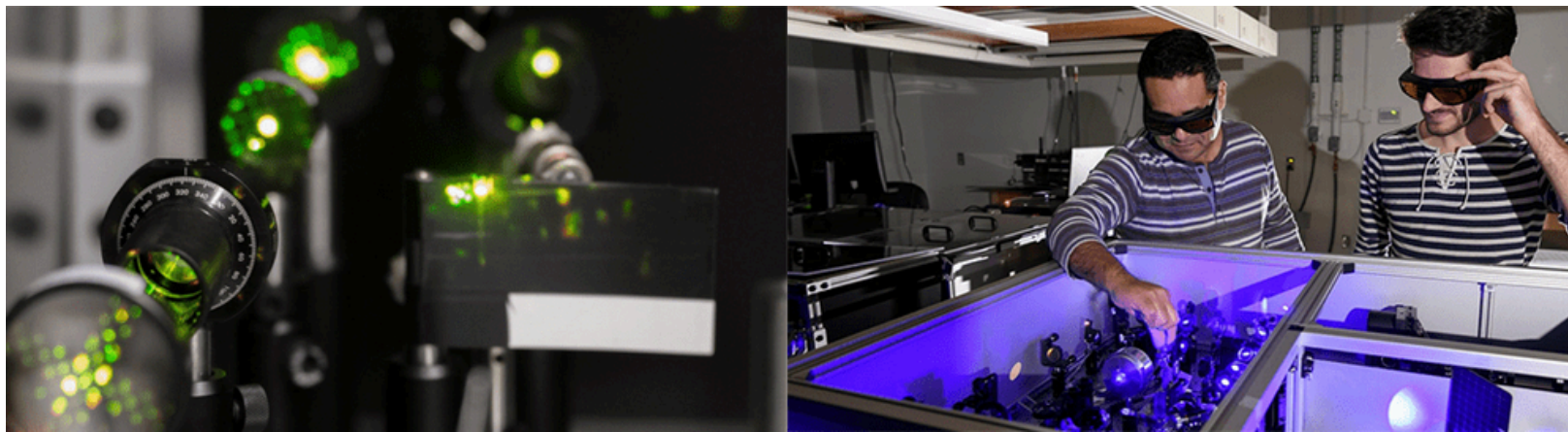
## CONTEXT

# OUR FIELD OF EXPERTISE

The Canada Excellence Research Chairs (CERC) on Light-Matter Interactions aims to provide new insights into the properties of microscopic systems made up of numerous light-induced particles interacting in the solid state, enabling the discovery and implementation of new materials for photonics and quantum technologies.

These particles interact not only between them, but also with the complex environment where they reside, and their quantum dynamics depend on this multi-partner dance on a moving floor.

Applications of quantum photonic are important in quantum treatment technologies such as quantum computing, quantum cryptography and quantum teleportation.

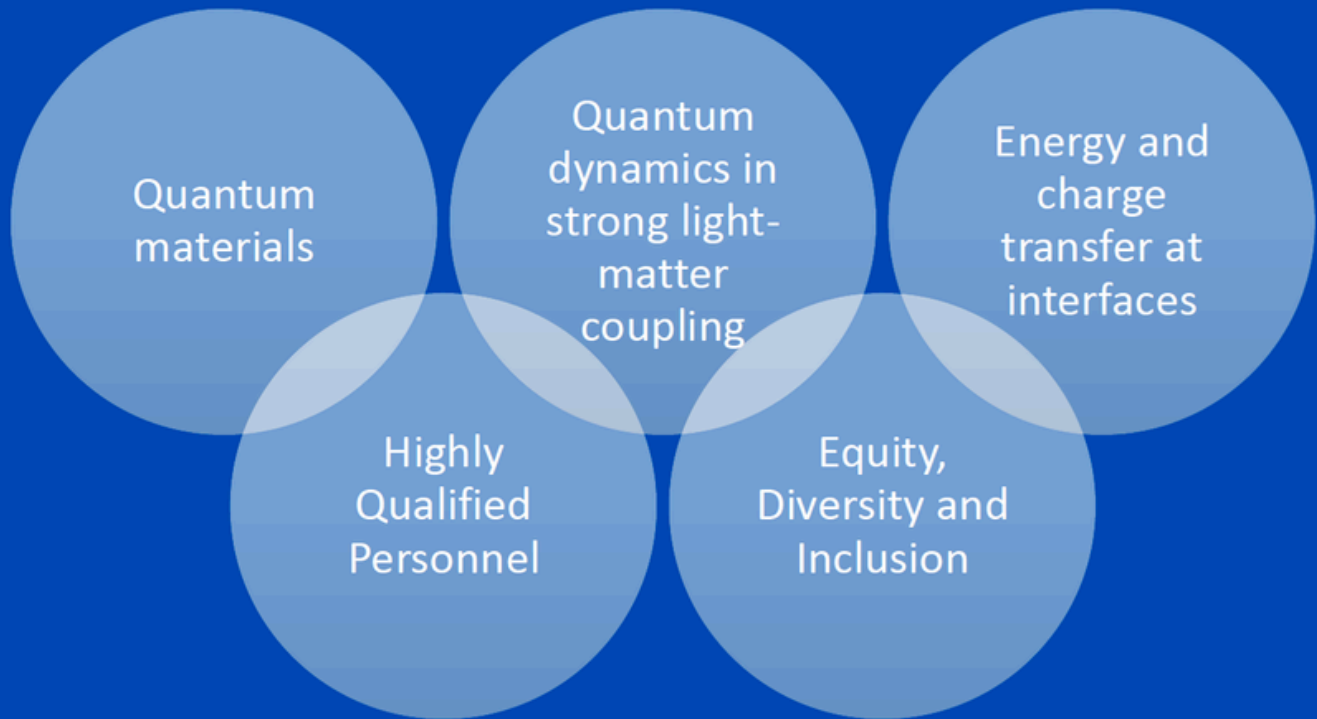


## CONTEXT

# CERC'S PILLARS

The CERC's work is based on five pillars. Three are related to research topics, namely quantum materials, quantum dynamics in strong light-matter coupling, and energy and charge transfer at interfaces. Equity, diversity, and inclusion (EDI) is an equally important pillar of our scientific approach, and we want to integrate it into all levels of the chair's operations. This commitment is led by the chairholder, Carlos Silva, and his team. We believe that to foster innovation, our research team must be a place where each individual can reach their full potential, which includes a culture of respect and inclusion.

Finally, a training plan for highly qualified personnel aims to (1) increase young people's interest in science with a view to recruitment, (2) ensure that staff develop skills related to cutting-edge research, (3) provide a stimulating and competitive training environment at the international level, and (4) provide employment opportunities.



## CONTEXT

# FOUR VALUES SUPPORTING THE EDI APPROACH

### ENABLE CHANGE

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The CERC aims to foster change for EDI in its actions, but also in the values associated with the scientific and research community.

### IMPACT

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The CERC team wishes to have an impact on the culture of science fields, in particular in sharing tools and knowledge on the topic of EDI in research and science fields.

### SHARED RESPONSIBILITY

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The CERC team will support its actions on research by and for people who have been marginalized by the culture and the structure of research and science fields. The EDI engagement of the CERC rests on a teamwork that includes the management team.

### HUMILITY

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The CERC team recognizes that it does not have all the solutions needed to provide a discrimination-free scientific environment. The CERC team recognizes that the vocabulary used to describe situations of discrimination may evolve and will adapt accordingly.

## CONTEXT

# STRUCTURE OF THIS DOCUMENT

This document for reflection and action is based on a review of the literature and a review of consultations with marginalized groups in academia and research.

Here we target the six underrepresented groups identified by the Canada Excellence Research Chairs Program, which are: (1) racialized individuals, (2) African, Caribbean and Black individuals, (3) Indigenous Peoples, (4) persons with disabilities, (5) women and gender equity-seeking groups and (6) individuals from 2SLGBTQIA+ communities.

We therefore begin this document for reflection and action towards EDI with a presentation of the 18 obstacles identified, followed by a presentation of the nine areas of action. These areas of action are linked to measures and indicators that we are making public.



Équipe de direction, été 2024

# 18 SYSTEMIC BARRIERS IDENTIFIED



- **Hostile Learning Environment**
- **Hostile Working Environment**
- **Lack of Diversity in Staff and in Visual Representation**
- **Divulgate Paradox**
- **Tokénisme-Trespassing-Sursollicitation**
- **Inequity of Access to Funding**
- **Sense of Belonging-Stereotype Threat-Impostor Syndrome-Energy Investment-Mental Health**
- **Colonial Institution**
- **Knowledge Traditions**
- **Standardizing the Indigenous Lived Experience**
- **Disappear or be murdered**
- **Accessibility of Premises and Obtaining Accommodations**
- **Minimization and Normalization of Violence Against Women**
- **Gendered Discrimination at Work Related to Maternity**
- **Misunderstanding of the Chosen Noun and Gender-Neutral Identification**
- **White Ignorance**
- **Resistance Related to Epistemological Stances**
- **Misunderstanding of Intersecting Realities**


The systemic barriers presented below consist of one or more grouped concepts. For each systemic barrier, we provide a definition and an example from an external resource.

## SYSTEMIC BARRIERS IDENTIFIED

# 1-HOSTILE LEARNING ENVIRONMENT

### Definition:

The **learning environment** is the atmosphere that prevails in a classroom and affects the emotional response of learners and teachers. It is qualified as **hostile** when there are subtle or not-so-subtle verbal or physical interactions that insult, attack or invalidate, or behaviors that exclude or isolate certain people. A hostile learning climate can lead to under-performance on the part of marginalized people.




*I remember we had this essay to give in elementary school. And I worked hard on it. I was this kind of student, wanted to please, to be seen as special! Well the teacher gave back the papers, I was the only black kid at this time. She didn't give me my essay back.*

*She took me outside the class and she start accusing me of cheating: "Who helped you? Who wrote it for you? You were supposed to do it alone! Everyone worked really hard to do their homework! Did you ask your parent? Did your father write it for you?"*

*And I was like: "No, no. I did it myself"*

*She never did that for the others, even when they had really good grades! Especially when they had good grades! She congratulated them in front of everyone. But you know black kids if we are good at school then it's because we cheat apparently. [1]*



**[1] Almeida, J. (2017, p.29). Rapport sur le racisme systémique vécu par la communauté LGBTQ+ montréalaise. Conseil québécois LGBT.**

## SYSTEMIC BARRIERS IDENTIFIED

# 2-HOSTILE WORKING ENVIRONMENT

### Definition:

**Work climate** is the atmosphere created by the attitudes, behaviors and values of the organization and its members. When **hostile**, the work climate affects employees' perception, commitment and performance in their work.



According to a consultation with employees with disabilities from Université de Montréal:

- 37 % have kept their situation hidden, even when the limitation is visible.
- 50 % of employees who had informed their manager and/or colleagues mentioned that their limitation had had an impact on obtaining a promotion
- Participants shared witness remarks imbued of prejudices and stereotypes, particularly in relation to mental health issues or non-visible limitations. [our translation, 2]

[2] Université de Montréal. (2021). *Expérience des employés vivant avec une limitation: Démarche de consultation.*


## SYSTEMIC BARRIERS IDENTIFIED

# 3-LACK OF DIVERSITY IN STAFF AND IN VISUAL REPRESENTATION

### **Definition:**


The Commission des droits de la personne et de la jeunesse du Québec (CDPDJ) orchestrates **equal access to employment** programs. These aim to ensure the equitable representation of people from groups that are victims of discrimination in all types of employment within an organization or business. Also, fair representation in a job category is the one which follows representation in the general population.

Similarly, **representations** in manuals, visibility material, etc. can also lack diversity.



*Not having any BIPOC STEM professors can be very difficult when there is no representation. In a way it makes it seem like there is no space in STEM academia for BIPOC.*

*For example, when learning about the work of past scientists, etc. in courses, RARELY are there scientists discussed that are not cis-gender white men. It would be nice to learn about more diversity in the field and also for professors to touch on or at least acknowledge the colonial and racist history of scientific research. [3]*



**[3] Turner, K. L. (2022, p. 63-66). Stories in Relation to Power and Privilege: The Experiences of Racialized Students in STEM Education at a Western Canadian University [Master Thesis, University of Calgary].**

## SYSTEMIC BARRIERS IDENTIFIED

# 4-DIVULGATION PARADOX

### Definition:

The disclosure paradox refers to a dual situation in which disclosing one's limitation or identity (Indigenous, Black, trans, etc.) enables access to services, but at the same time puts the person at risk, as they are then identified.

*A person from a community that is poorly represented in a school or workplace can end up acting as a spokesperson or educator:*

*I had a job where all my colleagues were men, in addition to be the only lesbian of the place, I was the only “young woman”, my identity was reduced to being the “lesbian” of the place, who was always asked questions about her sexuality. [our translation, 4]*

Don't expect Indigenous students to teach you everything about us, or expect us to automatically share our stories and teachings with you. [Marie Laing OISE master's student, Mohawk from Six Nations of the Grand River, 5]

*People with disabilities consulted by the Université de Montréal mention that there are few or no awareness-raising or information activities for people with disabilities, and that they feel they have to raise awareness at the same time as taking steps to obtain support. [our translation, 2]*

**[4] Fontaine, E., & Chanady, T. (2024, p. 39). Enjeux et réalités des identités lesbiennes, bissexuelles et queers\* au Québec en 2023. Réseau des lesbiennes du Québec.**

**[5] Macdonald, M. (2018, April 5). Lessons from the first Summit for Mentoring Indigenous Graduate Students. University Affairs.**

## SYSTEMIC BARRIERS IDENTIFIED

# 5-TOKENISM-TRESPASSING- OVERSOLICITATION

### Definition:

**Tokenism** consists in including people from marginalized groups and putting them forward so that a group or organization can claim to be inclusive.

**Trespassing** consists in requesting sensitive and personal testimonials or information from so-called marginalized people, for the purposes of a research project. [7]

**Over-solicitation** is asking marginalized people again and again to share their experiences of oppression without retribution.

*There are White mentors who will “collect you.” They are mentors who will want to add you to the cadre of students of Color that they have decided to help. These are the ones that will “trot” you out to events, ask you to represent the University at some panel during the admissions process, or ask you to serve on some type of diversity committee to help them figure out a solution to a problem they created for themselves. [...] Collectors are the ones that will ask you to be in photographs or public relations materials on behalf of the university. They also often limit their interactions with students of Color to ‘diversity’ events. [6]*



## SYSTEMIC BARRIERS IDENTIFIED

### 5-TOKÉNISME-TRESPASSING-SURSOLLICITATION (CONTINUED)

A friend of mine in school, who has a friend in the director of education's office, who has a friend in city hall, [...], who has a friend in the dean of arts and humanities' office, who has a friend in the department of anthropology, told me someone wanted a visit to my hub, my choza, my pueblo, my space, my inner layer to ask some questions. Nothing major. Just a basic questionnaire about trauma experienced in the civil war in El Salvador. Here's the thing an FYI, for your dissemination, for your distribution, for your references. People like my have never been allowed much privacy and now you come with papers to sign so that I can corroborate with a signature that my testimony for your research is valid? At the whim of the European and North American masters, we sign for our own deaths. Peeling this layer of the onion is trespassing. [7]

**[6] Rodríguez, C. O. (2018, p.4). Decolonizing academia: Poverty, oppression and pain. Fernwood Publishing.**

**[7] Martínez-Cola, M. (2020, p.30). Collectors, Nightlights, and Allies, Oh My. Understanding and Dismantling Privilege, 10(1), 6182.**

## SYSTEMIC BARRIERS IDENTIFIED

# 6-INEQUITY OF ACCESS TO FUNDING

### Definition:

An **inequity of access to funding** may arise when allocation rates for a given group are systematically lower than its application rate. In addition, it is necessary to investigate possible inequities of access when application rates for funding are lower than the representation in the general population for a given group.

*In 2017 the Australian National Health and Medical Research Council (NHMRC) implemented structural priority funding for projects led by women, with the goal of achieving gender equality in funding rates. [...]*

*The differences in funding rates are measured each year, making it possible to determine which programs will be allocated structural priority funding the following year. Structural priority funding will be discontinued when funding rates are the same for male and female researchers. [8]*

*Award rates are lower than application rates for visible minorities in SSHRC programs. [...] [Moreover], only 1.96% of chairholders (n=39) in all sectors identify as Black. [...] The underrepresentation of Black scholars in academia means there are insufficient Black mentors, constituting a systemic barrier for Black students. [9]*

**[8] Fines-Neuschild, M. (2022, p.37). Innovative EDI Practices by Granting Agencies. Quebec Interuniversity Equity Diversity Inclusion Network (RIQEDI) for the Fonds de recherche du Québec.**

**[9] Minister of Innovation, Science and Industry of Canada. (2023, p.9-17). Advisory Committee to Address Anti-Black Racism in Research and Research Training: Final report and recommendations.**

## SYSTEMIC BARRIERS IDENTIFIED

# 7-SENSE OF BELONGING-STEREOTYPE THREAT- IMPOSTOR SYNDROM-ENERGY INVESTMENT- MENTAL HEALTH

### **Definition:**

The **sense of belonging** refers to the fact that a person feels included, respected and able to contribute to the community in question.

**Stereotype threat** refers to a loss of performance by a person who finds themselves in an environment where a stereotype conveys a poor performance of this identity trait.

**Imposter syndrome** describes a situation where people begin to doubt their competence, even with concrete evidence of success.

Many researchers testify to the **great investment of energy** required to overcome oppressive everyday situations.

**Mental health** is a state of mental, psychological and emotional well-being. Having marginal identities can have consequences for mental health and lead to isolation.

We have grouped these five concepts together because they relate to issues within the individual themselves.



## SYSTEMIC BARRIERS IDENTIFIED

### 7-SENSE OF BELONGING-STEREOTYPE THREAT-IMPOSTOR SYNDROM-ENERGY INVESTMENT-MENTAL HEALTH (CONTINUED)



*Shortly after starting the particle physics project research work, I became terrified that people would realize my lack of scientific contribution. It undermined my morale. I was disappointed and anxious. I felt I had cheated, that is, that I hadn't been able to catalyze intuition effectively to easily generate the [desired] equations. What's more, I had the impression that I absolutely shouldn't have revealed it. The project had to come to an imminent end as I was seven months pregnant. [our translation, 10]*

**[10] Fines-Neuschild, M. (2021, p. 197). La dualité ethnographe-physicienne : Étude réflexive sur les négociations identitaires en physique [Doctoral dissertation, Université de Montréal].**

## SYSTEMIC BARRIERS IDENTIFIED

# 8-COLONIAL INSTITUTION

### Definition:

Universities' **colonialism** is reflected in: “the absence or marginalization of Indigenous content in curricula (outside of Indigenous-focused programs), the underrepresentation of Indigenous employees, professors and students, the difficulty to accept Indigenous knowledges and methodologies as reliable and authoritative, experiences of racism and microaggressions, absence of cultural safety, tokenism, performative diversity.” [11]

*From the vantage point of the colonized, a position from which I write, and choose to privilege, the term ‘research’ is inextricably linked to European imperialism and colonialism. The word itself, ‘research’, is probably one of the dirtiest words in the Indigenous world’s vocabulary. When mentioned in many Indigenous contexts, it stirs up silence, it conjures up bad memories, it raises a smile that is knowing and distrustful. It is so powerful that Indigenous people even write poetry about research. The ways in which scientific research is implicated in the worst excesses of colonialism remains a powerful remembered history for many of the world’s colonized peoples. It is a history that still offends the deepest sense of our humanity. Just knowing that someone measured our ‘faculties’ by filling the skulls of our ancestors with millet seeds and compared the amount of millet seed to the capacity for mental thought offends our sense of who and what we are. [12]*

**[11]. Sioui, G., & Shawayahamish, A. (2023, p. 5). ). Dewemaagannag/My Relations: Indigenous engagement guide. (p. 18) Office of Community Engagement, Concordia University.**

**[12] Smith, L. T. (2012, p. 1). Decolonizing Methodologies: Research and Indigenous Peoples. Bloomsbury Academic & Professional.**

## SYSTEMIC BARRIERS IDENTIFIED

# 9-KNOWLEDGE TRADITIONS

### Definition:

**Knowledge traditions** are ways of thinking, creating or transmitting knowledge acquired through observation and study of one's environment.

*My experience of education was one of continually being measured against a set of principles that required surrender to an assimilative colonial agenda in order to fulfill those principles. I distinctly remember being in grade 3, at a class trip to the sugar bush, and the teacher showing us two methods of making maple syrup – the pioneer method which involved a black pot over an open fire and clean sap, and the “Indian method” – which involved a hollowed out log in an unlit fire, with large rocks in the log to heat the sap up – sap which had bark, insects, dirt and scum over it. The teacher asked us which method we would use – being the only native kid in the class, I was the only one that chose the “Indian method”.*

*Things are different for this Kwezens. She has already spent seven years immersed in a nest of Nishnaabeg intelligence. She already understands the importance of observation and learning from our animal teachers, when she watches the squirrel so carefully and then mimics its actions. [...] She learned how to interact with the spirit of the maple. She learned both from the land and with the land. She learned what it felt like to be recognized, seen and appreciated by her community. She comes to know maple sugar with the support of her family and Elders. She comes to know maple sugar in the context of love. [13]*

**[13] Land as pedagogy: Nishnaabeg intelligence and rebellious transformation. Decolonization: Indigeneity, Education & Society, 3(3), Article 3.**

## SYSTEMIC BARRIERS IDENTIFIED

# 10-STANDARDIZING THE INDIGENOUS LIVED EXPERIENCE

### Definition:

The **standardization of the Indigenous experience** reflects the idea that Indigenous people are sometimes compared to stereotypes of Indigenous reality. It is important to remember that each Indigenous community has had its own unique experience of colonization. Furthermore, each Indigenous perspective is unique.



*It is a misconception that all Indigenous people have the same type of physical appearance. Indigenous people are often told “You don’t look indigenous” because they do not fit the stereotypical portrayal that people have of them. There is, however, a wide variety of physical traits among indigenous people. It is therefore possible to find some with blond hair and blue eyes, for example. In addition, Indigenous people should not be expected to wear their traditional clothing or symbols, which are usually reserved for ceremonies or pow-wows, daily. [14]*

**[14] Amnistie internationale et Mikana (2021, p.20-21). “You Don’t Look Indigenous!” and Other Prejudice.**

## SYSTEMIC BARRIERS IDENTIFIED

# 11-DISAPPEAR OR BE MURDERED

### Definition:

A systemic threat facing Indigenous women is the possibility of disappearing or being murdered. According to the Assembly of First Nations, “Indigenous women are four times more likely than non-Indigenous women to be victims of violence”. Between 2001 and 2014, the homicide rate for Indigenous women was four times higher than for non-Indigenous women.

*Cyndy Wylde is an Anicinapek8e and Atikamekw Nehirowisiw from the community of Pikogan in Abitibi. In her essay Émergence insoumise (Rebellious Emergence), Cyndy Wylde recounts that after teaching an evening class at the University of Quebec in Abitibi-Témiscamingue, she was waiting for a taxi. As the building was about to close, a security guard asked her to wait outside the campus.*

*No, but do you really think that I, a First Nations woman, am going to wait alone at night in Val-d'Or, in the midst of the Viens Commission's work, which clearly shows that almost no one cares about the fate of Indigenous women in this city and throughout Quebec? [...]*

*By not leaving me alone, and especially by telling me that he [the university security guard] understood, he confirmed that we, Indigenous women, were right to have these kinds of fears. [our translation, 15]*


**[15] Wylde, C. (2024, p. 9-10). Émergence insoumise : Réflexions sur la persistance du racisme systémique envers les femmes autochtones. Hannenorak.**

## SYSTEMIC BARRIERS IDENTIFIED


# 12-ACCESSIBILITY OF PREMISES AND OBTAINING ACCOMMODATIONS

### Definition:

In Canada, the Canadian Charter of Rights and Freedoms and the Canadian Human Rights Act guarantee equality for persons with disabilities, particularly in employment, education, and freedom of movement [16]. This includes access to places as well as accommodations.



*The National Educational Association of Disabled Students recommend to (3 of 11 recommendations):*

- *Provide reserved seating to students with disabilities where the disability requires them to sit in specific locations.*
  - *Make accessible washrooms available in various convenient locations across campus. [...] Ensure that the locations of the accessible washroom be readily available to students, for example, on campus maps.*
  - *Make all social, recreational and retail locations on campus accessible as these are important elements of campus life for students. [17]*
- 

**[16] Gouvernement du Canada (2024, August 2). Droits des personnes handicapées**

**[17] National Educational Association of Disabled Students (2012, p.27). Enhancing Accessibility in Post-Secondary Education Institutions: A Guide for Disability Service Providers.**

## SYSTEMIC BARRIERS IDENTIFIED

# 13-MINIMIZATION AND NORMALIZATION OF VIOLENCE AGAINST WOMEN

### Definition:

The **minimization and normalization of violence against women** occurs particularly in the context of rape culture. Rape culture is a “set of behaviors that trivialize, excuse and justify sexual assaults, or turn them into jokes and entertainment. [...] In such a culture, responsibility for the aggression falls on the victim, whose word is called into question.” [18, see also 19]

*The horrifying trial of mass rape in Mazan, France, has brought to light a chilling case of chemical submission, where a husband drugged his wife regularly to orchestrate her rapes. As the 51 defendants and their defence attorneys continue to deny the accusations despite overwhelming evidence, it raises important questions about the role of collective imagination in enabling sexual violence – particularly when fantasies of domination take such extreme forms.*

*Reading fairy tales with children offers an important opportunity to teach consent. Educators should explain the historical context while also addressing the modern implications. Scenes in which women are unconscious or drugged should no longer be interpreted as seduction. For instance, in *Dangerous Liaisons* (1782), Valmont sneaks into Cécile Volanges’ room while she sleeps and violates her. This is not seduction, it is rape. [20]*

[18] Conseil du statut de la femme. (2025, August 14). Culture du viol.

[19] ONU Femmes. (2019, November 18). 16 ways you can stand against rape culture.

[20] Aragon, S. (2024, October 13). The Mazan rape trial in France: does literature, with its ‘sleeping beauties’, glorify rape? The Conversation.

## SYSTEMIC BARRIERS IDENTIFIED

# 14-GENDERED DISCRIMINATION AT WORK RELATED TO MATERNITY

### Definition:

According to the Commission des droits de la personne et de la jeunesse du Québec (CDPDJ), “you can't be discriminated against or harassed because you're pregnant. In fact, the Charter of Human Rights and Freedoms prohibits anyone :

- treating you differently because you're pregnant
- making repeated and offensive comments about your pregnancy
- having repeated and offensive behaviour towards you related to your pregnancy”. [our translation, 20]

In practice, many women testify being refused a promotion or having lost their job following maternity leave.

*When I was living with him, my dad always took responsibility of my well-being, such as meal preparation, purchase of clothes or school supplies. He even brushed and tied my hair! That just show how long it took me to understand that the absence of an equitable sharing of parental and domestic tasks between fathers and mothers was a widespread problem! I thought I was living the norm, but I was experiencing the exception. [...]*

*As long as parenthood will be considered as a naturally feminine responsibility, there will not be any equality of chances for women, all women, at work as at home. [our translation, 22]*



## SYSTEMIC BARRIERS IDENTIFIED

### 14-DISCRIMINATION GENÉRÉES AU TRAVAIL LIÉ À LA MATERNITÉ (SUITE)



*In common parlance, are often confused and comprehend as being a one and same thing the parental leave - lasting twenty-five or thirty-two weeks depending on the chosen system and administer by the Régime québécois d'assurance parentale (RQAP) - and the exclusive maternity leave. The latter also exists within the RQAP but lasts fifteen to eighteen weeks whereas the paternity leave lasts three to five weeks. [...]*

*Professionnal discrimination related to maternity operates on a systemic basis against all women, whether they are mother or not and whatever their age. [our translation, 22, see also 23]*

**[21] CDPDJ. (2025, August 15). Pregnancy.**

**[22] Hamelin, M. (2017, p.9;11-13;16). Maternité : La face cachée du sexisme. Lémeac.**

**[23] Emma. (2017, May 20). You should've asked. (translated by Una).**

## SYSTEMIC BARRIERS IDENTIFIED

# 15-MISUNDERSTANDING OF THE CHOSEN NOUN AND GENDER-NEUTRAL IDENTIFICATION

### Definition:

A **chosen name** is a name that some people use to identify themselves and that is different from their legal name. [24] **Gender-neutral identification** of members of the organization includes a set of measures aimed at restricting the mention of sex or gender to situations where it is necessary. In the education sector, this includes, in particular, the use of student numbers rather than permanent codes, as the latter reveal the person's sex at birth, as well as inclusive, gender-neutral, or non-sexist communication, particularly in polite forms of address, greetings, job offers, and forms to be filled out. [25]

*According to the GATUM, gender identification:*

*Should not be considered a reliable way of distinguishing between men and women and should remain confidential. For all other purposes, including compiling statistics, choosing a calling formula and grammatical gender, and assigning a residence, we want UdeM to rely on people's self-identification, not gender. [our translation, 26]*



[24] UQAM. (2025, août 14). Mon prénom, mon choix!

[25] Gilbault Fitzbay, M. (2021). Apprendre à nous écrire: guide & politique d'écriture inclusive. Les 3 sex\* et Club Sexu.


[26] GATUM. (2017). Reconnaissance des identités trans.

## SYSTEMIC BARRIERS IDENTIFIED

# 16-WHITE IGNORANCE


### Definition:

**White ignorance** implies that by having a system designed by and for whites, structural obstacles are invisible to them.



*I'm no longer engaging with white people on the topic of race. Not all white people, just the vast majority who refuse to accept the legitimacy of structural racism and its symptoms. I can no longer engage with the gulf of an emotional disconnect that white people display when a person of colour articulates our experiences. You can see their eyes shut down and harden. It's like treacle is poured into their ears, blocking up their ear canals like they can no longer hear us.*

*This emotional disconnect is the conclusion of living a life oblivious to the fact that their skin colour is norm and all others deviate from it. At best, white people have been taught not to mention that people of colour are 'different' in case it offends us. They truly believe that the experiences of their life as a result of their skin colour can and should be universalised. I just can't engage with the bewilderment and the defensiveness as they try to grapple with the fact that not everyone experiences the world in the way that they do. They've never had to think about what it means, in power terms, to be white- so any time they're vaguely reminded of this fact; they interpret it as an affront. The journey towards understanding structural racism still requires people of colour to prioritise white feelings. Their eyes glaze over in boredom or widen in indignation. Their mouths start twitching as they get defensive. Their throats open up as they try to interrupt, itching to talk over you but not really listen, because they need to let you know that you've got it wrong. [27]*



**[27] Eddo-Lodge, R. (2017). Why I'm No Longer Talking to White People About Race. Bloomsbury Publishing.**

## SYSTEMIC BARRIERS IDENTIFIED

# 17-RESISTANCE RELATED TO EPISTEMOLOGICAL STANCES

### Definition:

**Epistemology** is the study of how knowledge is constructed, and this knowledge is not constructed in the same way across all disciplines. While in the vast majority of physics research, the researcher and the object of investigation are two independent entities, Indigenous, socio-constructivist, and critical perspectives conceive of this relationship differently. **Resistance related to epistemological stances** is evident, for example, in course curricula, which may integrate, ignore, or discredit Indigenous epistemologies and the people who identify with them. Finally, to overcome this resistance, it is important to promote awareness that there are many ways to conduct research.

*First Nations knowledge ways are a product of a valid human experience in a relatively similar environment that has been developed over a long period of time; and for this reason, it is valid in its own right. Validity has to do with the fact that First Nations people are still here today. We have survived using our own knowledge system. [28, voir aussi 29]*

[28] Aikenhead, G. S., & Michell, H. (2011, p. 88). **Bridging Cultures: Scientific and Indigenous Ways of Knowing Nature**. Pearson Canada.

[29] Michell, H., Vizina, Y., Augustus, C., & Sawyer, J. (2008). **Learning Indigenous science from place: Research study examining intidenous-based science perspectives in Saskatchewan First Natios and metis community context** (p. 158). University of Saskatchewan.

## SYSTEMIC BARRIERS IDENTIFIED

# 18-MISUNDERSTANDING OF INTERSECTING REALITIES

### Definition:

While consultations and studies may highlight the oppression experienced by marginalized people who share a common identity trait, the CERC literature review showed that little is known about people who do not fully identify with one group or another.

As intersectional theory emphasizes, the combination of oppression related to different identity characteristics such as gender, skin color, disability, and sexual orientation creates unique situations—**intersecting realities**—that go beyond the sum of the different oppressions identified for members of each group.

*Research focusing exclusively on mixed identities has only recently emerged, as races were historically thought of in binary terms. [...]*

*I wanted to exchange with women that lives in the same social position than me, that is, having a Black father and a White mother. [...]*

*Far from being a homogeneous group, the women who participated in this research have different perceptions of biracialism, in their own racialization (the process of assigning a racial identity to a person according to socially constructed characteristics/stereotypes) and in the ways to construct their identity. [our translation, 30]*



## SYSTEMIC BARRIERS IDENTIFIED

### 18-MISUNDERSTANDING OF INTERSECTING REALITIES (CONTINUED)



*In this paper, we propose to highlight testimonies from eight Muslim claiming a non-normative sexuality and gender identity. Their stories, lived experiences and positionality break with and challenge conventional alienating and impossible representations that are said about them.*

*“If we speak of struggles, if we speak of having insults shouted at you in the street or being stared at strangely, I never really know if it is because, like, I look too sissy or because I look too brown or because... You know, we have many reasons to be hated...!” Yassine [our translation, 31]*

**[30] Lefebvre Jean, M. (2023, p.42;44;45). Ni comme ma mère, ni comme mon père. Hurlantes éditrices.**

**[31] Chehaitly, S., Rahman, M., et Chbat, M. (2020, p.185;199). « Est-ce que c’est parce que j’ai l’air trop fif ou trop brun?... On a plusieurs raisons de se faire détester! » : Être musulman·e LGBTQ+ au Québec et vivre à l’intersection de multiples oppressions. Récits de quelques parcours militants. Nouvelles pratiques sociales, 31(2), 182-205.**

## ADDRESS SYSTEMIC BARRIERS

# 9 AREAS OF ACTION

To ensure that the design and implementation of research within the CERC research program demonstrates leadership in EDI, we have implemented an approach inspired by the intersectional methods and analytical frameworks of data feminism [32].



- **1-Culturally Responsive Mentoring**
- **2-Annual Personalized Training Objectives**
- **3-Involvement in Parité sciences**
- **4-Disseminating Knowledge about EDI and Decolonization**
- **5-Open science and Knowledge Transfer**
- **6-Addressing Citation Bias**
- **7-Encouraging Research Collaboration with the Global South**
- **8-Have Research Projects with a Social Component**
- **9-Evaluation of Study and Work Climate**

The CERC team wishes to participate in efforts to promote Indigenous knowledge systems and decolonization with humility and respect. Actions to this end can be found in fields 5-Open Science and 7-Encouraging Collaboration with the Global South. As Max Liboiron points out, there are many ways to do anti-colonial science: “In addition to Indigenous sciences, there are, for example, also queer, feminist, Afro-futurist, and spiritual land relations that are anticolonial”. [33]

[32] D’Ignazio, C., & Klein, L. F. (2020). *Data Feminism*. The MIT Press.

[33] Liboiron, M. (2021, p. 27). *Pollution Is Colonialism*. Duke University Press.

## ADDRESS SYSTEMIC BARRIERS

# 1- CULTURALLY RESPONSIVE MENTORING

We aim to implement benchmarks drawn from the Culturally Responsible Mentoring approach [34]. These benchmarks include: safe spaces to share experiences and explore identities, peer and elder guidance, trust and interdependence, working on strengths rather than risk factors. In addition, culturally responsible mentoring is put into practice during recruitment, induction and career advancement.

## 01 ACTIVE RECRUITMENT

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The CERC holder is committed to continuing to recruit women and members of underrepresented groups to his or her team. Given the holder's dual Mexican/ Canadian citizenship and affiliations with universities and research centers in Mexico, particular attention will be paid to recruiting Latin American individuals.

## 02 ONBOARDING

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The CERC leadership team has implemented an onboarding procedure that establishes rules, expectations, and mentoring relationships. A document on the group's culture is available for consultation. Each new recruit meets with the EDI coordinator to establish a personal connection and explore their interests related to EDI, including their needs and the obstacles they face.

## 03 CAREER ADVANCEMENT

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The amount of scholarships awarded to students in the CERC is \$27,000 for master's degrees and \$40,000 for doctorates, which is 1.15 to 1.9 times higher than scholarships from government funding agencies. The CERC team supports the development of general skills, including communication and science outreach. The CERC chair and leadership team will encourage students who identify as Indigenous or Black to participate in local or international networking activities related to their respective communities (Be-STEMM, Ngā Here Mātauranga, ICTP) and will support students in their efforts to access funding.

{1} At the time of writing this document, master's scholarships are \$17,500/year (FRQ and NSERC), doctoral scholarships are \$21,000/year (FRQ) and \$35,000/year (NSERC).

**[34] Han, I., & Onchwari, A. J. (2018). Development and Implementation of a Culturally Responsive Mentoring Program for Faculty and Staff of Color. *Interdisciplinary Journal of Partnership Studies*, 5(2), Article 2.**

## ADDRESS SYSTEMIC BARRIERS

# 2- ANNUAL PERSONALIZED TRAINING OBJECTIVES

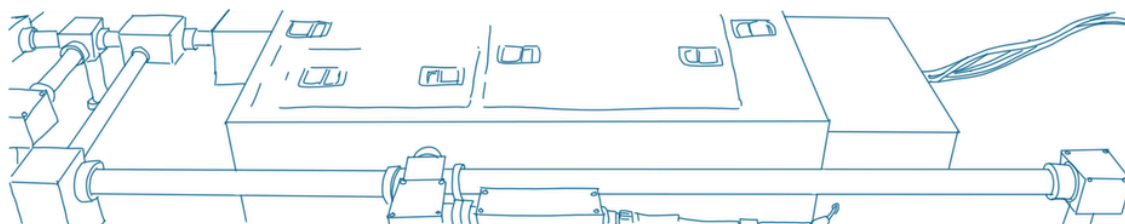
**EDI is an integral part of CERC's focus** and will be discussed periodically at group meetings. EDI training is a dynamic process that must take into account each individual's own knowledge, interests and skills. Also, EDI can only be put into action if the members of CERC and the research community are equipped and trained for it. The main resistance observed is white ignorance (obstacle 17) which refers to the observation that structural obstacles are invisible to white people and those in positions of privilege.

## 01 TRAINING AND AWARENESS-RAISING

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Our pathways towards equity, diversity and inclusion relies heavily on training and awareness-raising for all CERC members (including the core team). Each member—students, teaching staff, and research staff—will have a personalized training goal {2}, i.e., a number of hours to be allocated to EDI training or awareness-raising sessions. Considering that learning styles vary from person to person, each member will be able to draw from a bank of recommended activities that includes: films and documentaries, conferences, training sessions, podcasts, books, etc. Activities can be carried out alone or in groups and are adapted to each person's reality, interests, and prior knowledge. In other words, the goal is to stimulate interest in the subject of EDI based on personal experiences. The EDI advisor will conduct an annual follow-up to assess each member's involvement in the awareness process.

{2} Please note that individuals who choose to take French courses may have a reduced number of mandatory EDI training hours.



## ADDRESS SYSTEMIC BARRIERS

# 3- INVOLVEMENT IN PARITÉ SCIENCES

Founded in 2020 at the University of Montreal, Parité sciences aims to achieve gender parity in the sciences. Parité sciences recognizes the importance of an inclusive learning environment in sparking interest and encouraging the pursuit of studies in science and engineering.

To this end, Parité sciences targets stakeholders, teachers and future teachers, educational or guidance counselors, individual teaching assistants, and science facilitators in secondary schools, colleges, and universities to raise awareness of their key role in the career guidance of young women.

Parité sciences offers synchronous and asynchronous training, tool sharing, and community of practice facilitation. Since 2023, Parité sciences has also incorporated an intersectional perspective, reinforcing its commitment to inclusivity.

The CERC makes a significant contribution to Parité sciences' activities.



## ADDRESS SYSTEMIC BARRIERS

# 4- DISSEMINATING KNOWLEDGE ABOUT EDI AND DECOLONIZATION

EDI is a field in which knowledge and recommended practices are evolving rapidly. For this reason, it is important for the CERC team to continue to be a forerunner in the implementation of innovative EDI practices, for the benefit of the post-secondary education community. A number of actions have been planned to this end:

### 01 TRANSPARENCY

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Diffuser ce plan EDI auprès de la communauté de l'enseignement post-secondaire et de la communauté de recherche de deux façons : partager une version remaniée de ce plan EDI et rendre accessible la revue de littérature menée à cet effet notamment les vides observés dans la revue de littérature pour stimuler et soutenir les recherches dans le domaine de l'EDI.

### 02 TOOL PRODUCTION

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Contribute to the production of EDI tools. Integrate interns or members of the CERC team into the production of EDI tools in STEM (science, technology, engineering, and mathematics).

### 03 SHARING

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Carry out knowledge transfer and sharing activities in EDI, in particular by mobilizing national and international experts.

### 04 NEW KNOWLEDGE

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Generate knowledge on EDI. The current EDI coordinator at CERC has research expertise in EDI in STEM. As such, her duties include EDI research activities. CERC's contribution will be duly noted when the research results are presented.



## ADDRESS SYSTEMIC BARRIERS

# 5- OPEN SCIENCE AND KNOWLEDGE TRANSFER

## 01 OPEN SCIENCE

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The CERC aims to draw inspiration from the principles of open science to improve its research practices. **Open science is based** on open scientific knowledge, open science infrastructures, open participation by stakeholders in society, and open dialogue with other knowledge systems [35].

Within the framework of the CERC on light-matter interactions, some **areas of action** include: promoting the accessibility of scientific publications and source codes; disseminating educational and popularization resources, particularly in French; encouraging the scientific community to use available equipment; and undertaking a reflection on knowledge systems.

## 02 KNOWLEDGE TRANSFER

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The CERC team culture encourages all members to be **responsible and proactive** in knowledge mobilization and dissemination activities. In order to equip group members (students, postdocs) for this purpose, training on scientific communication will be offered every two years, taking into account issues related to EDI. In addition, the CERC's knowledge mobilization and dissemination strategy will take into account a variety of communication styles.

[35] UNESCO. (2021, p. 7). UNESCO Recommendation on Open Science (34 pages).

## ADDRESS SYSTEMIC BARRIERS

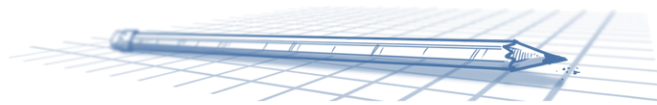
# 6- ADDRESSING CITATION BIAS

Numerous bibliometric studies have shown that **female scientists are cited less often than their male colleagues**.

The objective of this measure is to evaluate the citation rate of articles produced at the CERC. Subsequently, it will be possible to establish a representation target for future publications. Steps are currently being taken with the staff of the UdeM science library. Members of the group or research assistants could contribute to the project to ensure its success.

### **! CITATION BIAS IN ENGINEERING**

First-authored female papers appeared in journals with significantly higher field-normalized Impact Factors than their male colleagues, but received significantly fewer citations (Table 2). First-authored female papers also obtained significantly lower citation rates even in materials and metals & metallurgy subfields where they account for a larger share of the scientific output (23% and 22%, respectively). [36]



[36] Ghiasi, G., Larivière, V., & Sugimoto, C. R. (2015, p. 6). On the Compliance of Women Engineers with a Gendered Scientific System. PLOS ONE, 10(12), e0145931.

## ADDRESS SYSTEMIC BARRIERS

# 7- ENCOURAGING RESEARCH COLLABORATION WITH THE GLOBAL SOUTH

The CERC aims to expand its research collaborations beyond Euro-American networks. First, particular attention will be given to research partnerships with Latin American countries.

Discussions are underway with partners at the Universidad Nacional Autónoma de México (UNAM) to undertake collaborations on the theme of EDI, including an on-site visit.

The CERC team aims to be present at research conferences held in countries in the Global South, such as the International Materials Research Congress organized by the Sociedad Mexicana de Materiales (2024, 2025) and the International Conference of the African Materials Research Society (2024).

**Carlos Silva Acuña encourages the establishment of joint supervision agreements with universities in Mexico such as CINVESTAV.**

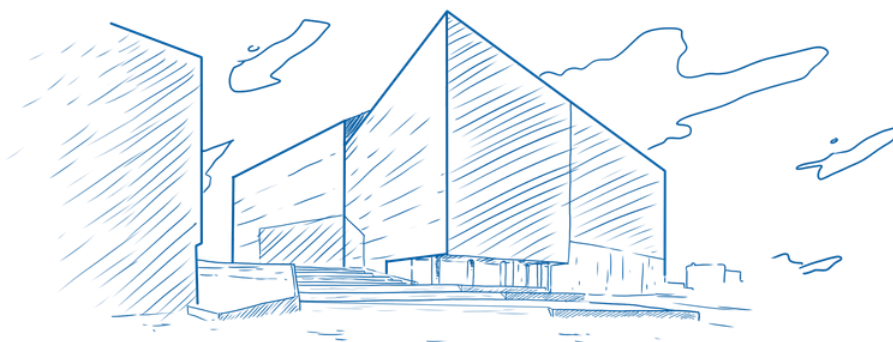


## ADDRESS SYSTEMIC BARRIERS

# 8- HAVE RESEARCH PROJECTS WITH A SOCIAL COMPONENT

CERC research aims to provide new insights into the properties of microscopic systems consisting of numerous light-induced particles interacting in the solid state, which will enable the discovery and implementation of new materials for photonics and quantum technologies. **What about the social issues related to this research topic?**

During the years of CERC funding, the leadership team aims to develop relationships with social science researchers in order to **explore opportunities for advancing knowledge through an interdisciplinary approach.**



# 9- EVALUATION OF STUDY AND WORK CLIMATE

In partnership with the CERC Eco-Evo-Patho of Microbes in Nature and the One Urban Health CERC both at the Université de Montréal, we aim to work with external consulting staff to **create a survey to assess the study and work climate** of the CERC members involved. This survey will be distributed and analyzed three times over the course of the CERC's funding, in 2026, 2028 and 2030.

This assessment of the study and work environment is the cornerstone of the process for evaluating the impact of the EDI measures implemented in the CERC.

## MEASURES AND INDICATORS

### TABLE 1: SUMMARY OF MEASURES TAKEN TO ADDRESS SYSTEMIC BARRIERS (CONTINUED)

Actions to be taken	Systemic barrier(s) targeted	Person or group responsible / Implementation deadline	Data that will be collected to measure progress
1- Culturally Responsive Mentoring	1-Hostile Learning Environment; 3-Lack of Diversity in Staff and in Visual Representation; 4-Divulgate Paradox; 5-Tokenism-Trespassing-Oversolicitation; 6-Inequity of access to financing	Leadership team/ Implementation September 2025; Ongoing	# of participants # interview
2- Annual Personalized Training Objectives	1-Hostile Learning Environment; 2-Hostile Working Environment; 5-Tokenism- Trespassing-Oversolicitation; 8-Colonial Institution; 9-Knowledge Traditions; 10-Standardizing the Indigenous Lived Experience; 13-Minimization and Normalization of Violence Against Women; 15-Misunderstanding of the Chosen Noun and Gender-Neutral Identification; 16-Misunderstanding of Intersecting Realities; 17-White Ignorance; 18-Resistance Related to Epistemological Stances	EDI coordinator/ First data for a full year in September 2026; Ongoing	# hours / person # of participants
3- Involvement in Parité sciences	1-Hostile Learning Environment; 5-Tokenism- Trespassing-Oversolicitation	EDI coordinator/ Ongoing	# communications where the CERC is highlighted

## MEASURES AND INDICATORS

**TABLE 1: SUMMARY OF MEASURES TAKEN TO ADDRESS SYSTEMIC BARRIERS (CONTINUED)**

Mesures à prendre	Obstacle(s) systémique(s) visé(s)	Personne ou groupe responsable / Date limite de mise en œuvre	Données qui seront recueillies pour mesurer le progrès
4-Disseminating Knowledge about EDI and Decolonization	8-Colonial Institution; 9-Knowledge Traditions; 17-White Ignorance; 18-Resistance Related to Epistemological Stances	EDI coordinator/ Ongoing; Make the EDI plan public by December 2025;	# tools* # internships # participants in EDI events *when producing EDI tools, it's important to take the time to do it right, so this number may be low (1-3) and evolve very slowly
5- Open Science and Knowledge Transfer	9-Knowledge Traditions; 18-Resistance Related to Epistemological Stances	Leadership team/ Ongoing	# knowledge transfer activities # accessible documents # trainings
6- Addressing Citation Bias	3-Lack of Diversity in Staff and in Visual Representation; 6- Inequity of access to financing	EDI coordinator/ March 2027	% of women cited in papers published by CERC members
7- Encouraging Research Collaboration with the Global South	8-Colonial Institution	Leadership team/ Ongoing	# partnership

## MEASURES AND INDICATORS

**TABLE 1: SUMMARY OF MEASURES TAKEN TO ADDRESS SYSTEMIC BARRIERS (CONTINUED)**

Mesures à prendre	Obstacle(s) systémique(s) visé(s)	Personne ou groupe responsable / Date limite de mise en œuvre	Données qui seront recueillies pour mesurer le progrès
8- Have Research Projects with a Social Component	8-Colonial Institution; 18-Resistance Related to Epistemological Stances	Leadership team/ March 2027	# partnership* *in knowledge production related to EDI, it's important to take the time to do it right, so this number may be low and evolve very slowly
9-Evaluation of Study and Work Climate	1-Hostile Learning Environment; 2-Hostile Working Environment; 16-Misunderstanding of Intersecting Realities; 17-White Ignorance; 18-Resistance Related to Epistemological Stances	EDI coordinator/ December 2026; December 2028; December 2030	3 surveys completed before 2030; % of participation

Here is a list of obstacles that are not directly addressed by the measures of our pathways toward equity, diversity and inclusion.

11-Disappear or be murdered

12-Accessibility and Accommodations

14-Gendered Discrimination at Work Related to Maternity

These obstacles are either on the **societal or institutional level**. In this respect, CERC will pass on these observations to the stakeholders concerned and will reflect on its possible scope of action with regard to these issues.

# CONCLUSION

## FINAL WORD

In these Reflection and action pathways towards equity, diversity and inclusion, we present 18 identified systemic barriers, 9 areas for action, and our framework of measures and indicators.

In the interest of transparency, we have chosen to make our pathways towards equity, diversity, and inclusion public. This approach is part of our areas of action 4-Dissemination of knowledge on EDI and decolonization and 5-Open science and knowledge transfer.

We hope that this document will stimulate discussion among the various stakeholders in the research community.

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## TO CONTACT US

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