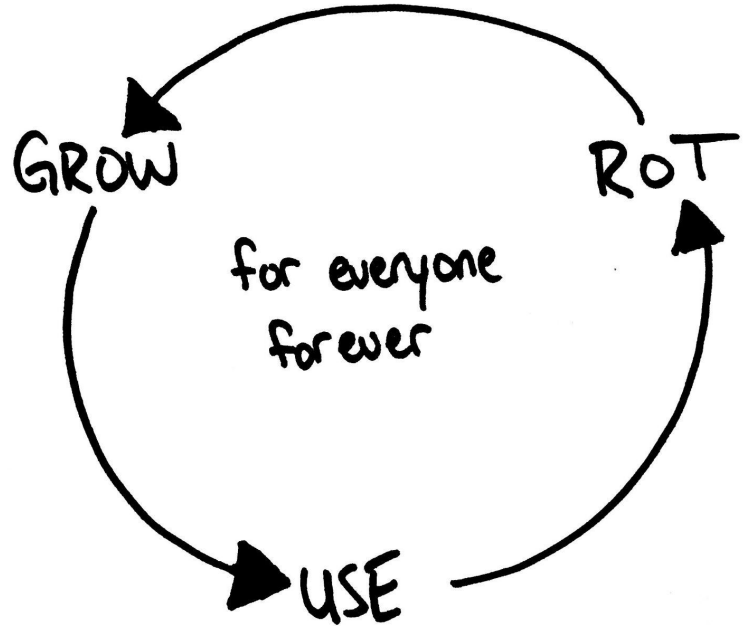


# Is sustainable HEP possible? The answer's probably no.

Emma McKay (they/them) & Hannah Wakeling (she/they)  
McGill University  
Sustainable HEP - June 2021

# What is sustainability?

- Long long time scales
  - Perfectly circular processes
  - Considers all socio-ecosystems
  - Decent for all life
- 
- Impossible for sustainability:
    - GHG emissions
    - physical waste
    - mined/extracted materials
    - capitalism



# How do we get there?

It's complicated, but as far as waste goes:

## **REFUSE**

STOP mining/using/wasting unnecessarily

## **REDUCE**

mine/use/waste minimally when absolutely required

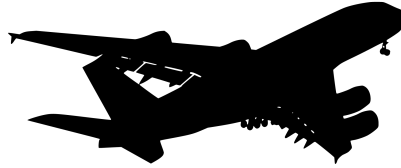
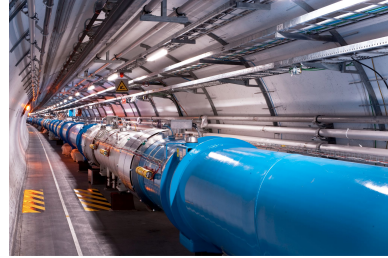
## **ROT**

ecosystem-based “recycling” is efficient and life-giving

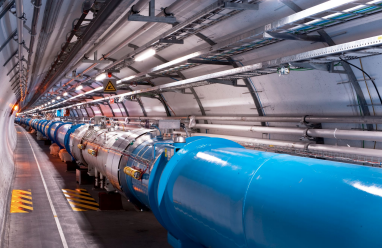
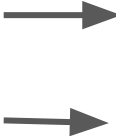
## **RECYCLE**

last option, thermodynamically intensive, produces additional toxic waste

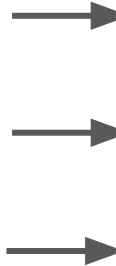
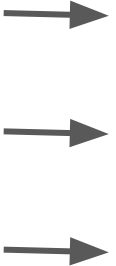
# How does particle physics fit in to this sketch of sustainability?



How does particle physics fit in to this sketch of sustainability?



IRREDUCIBLE CARBON AND MATERIALS COST



# There's so much we don't know

What is the embodied carbon cost of CERN? Where did all those metals come from? What is the social impact of all of those metals coming out of the ground?

- if we are going to reduce and recycle, we need to understand these details
- HEP should dedicate far more human resources to investigating the impact of its work
  - it can start small, like with analysis the environmental cost of computing for a project you are working on, e.g. a section of Hannah's thesis
  - but it *cannot* stay small

# REFUSE

The biggest move we can make is refusal.

HEP's irreducible carbon and material cost doesn't fit sustainability.

Sustainability is urgent. Is HEP?



What would a  
world without  
extractivism  
look like?

@mininginjustice

*Is sustainable HEP possible? The answer's probably no.*

Thanks for your attention!

We welcome further discussion and your questions.

[emma.m.mckay@mail.mcgill.ca](mailto:emma.m.mckay@mail.mcgill.ca) & [hannah.wakeling@mail.mcgill.ca](mailto:hannah.wakeling@mail.mcgill.ca)