Collaboration in a Global Setting

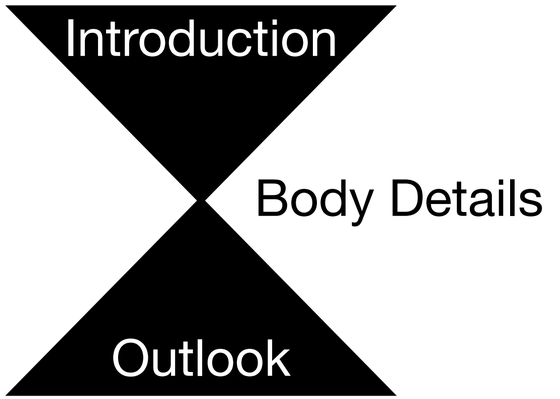
First EuCAPT School on Cosmology
Soft Skills Workshop Session
September 20, 2023

Johan Sebastian Bonilla Castro (They/Them)
Postdoctoral Scholar, University of California Davis

Also find a pair!

What qualities are important in a physicist?

What is to be covered



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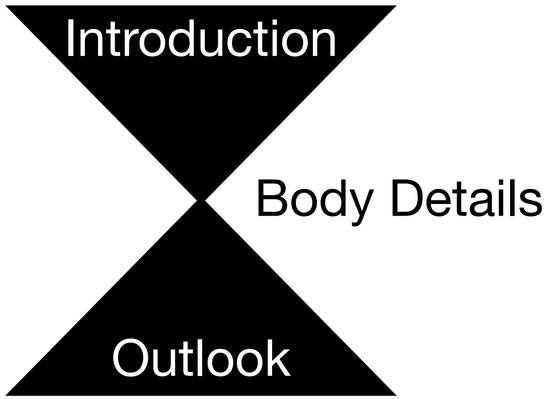
—> Approachability
—> Initiative
—> Resourcefulness



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  -> Personal/Professional Background
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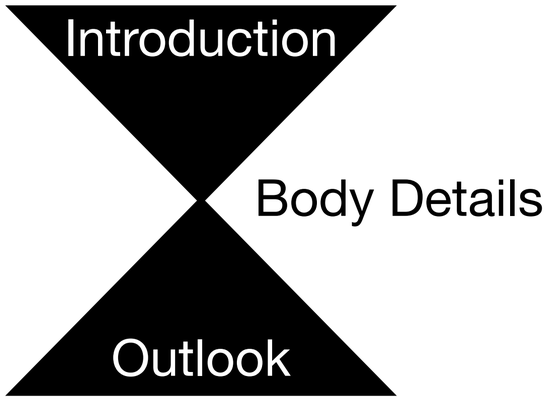

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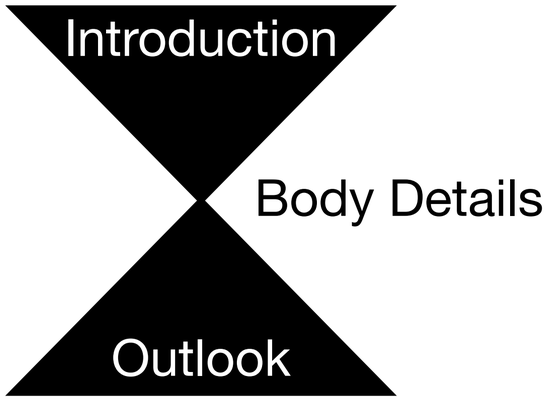
  -> The growth of large collaborations
  -> Connection of Experiment/Theory, Individual/Collaboration
  -> Unexpected(?) skills in research



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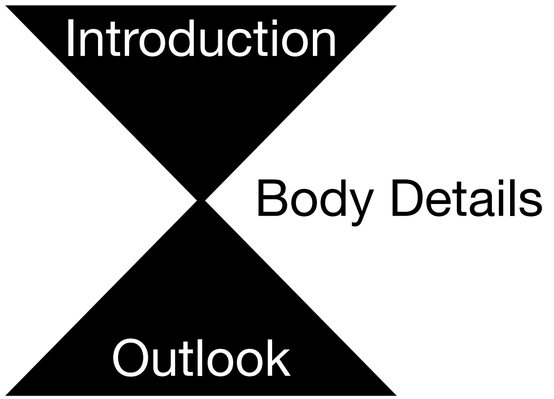

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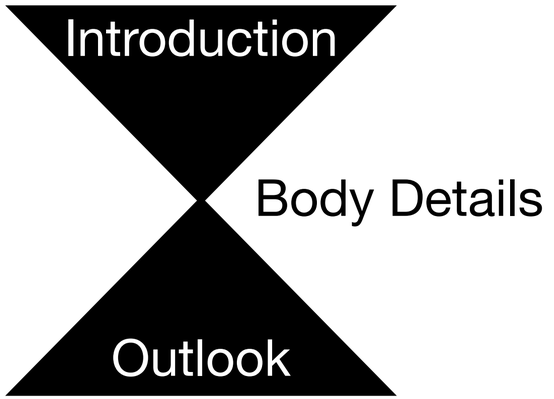

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- The workshop part!
  -> Interspersed activities on skilles: communication, leadership, cross-cultural

Who am I?

And why am I here?

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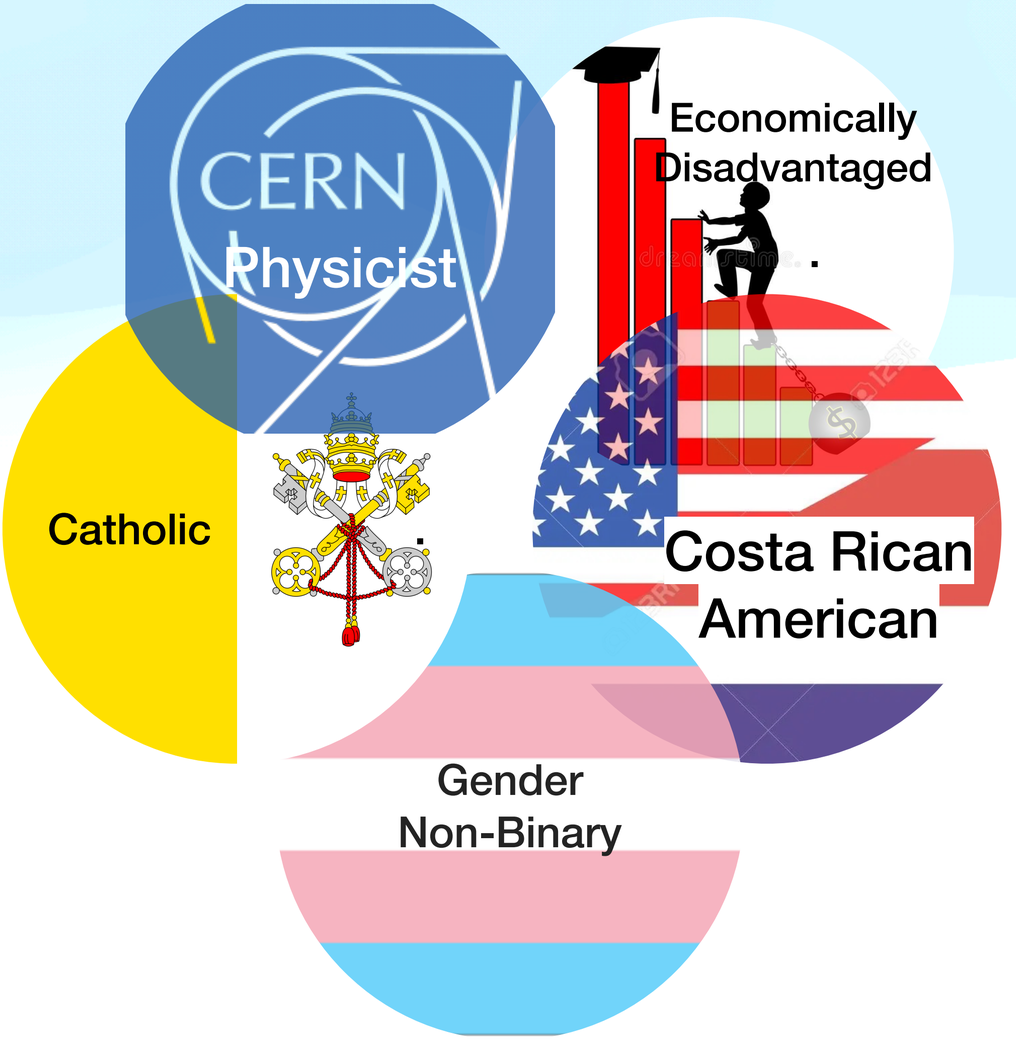

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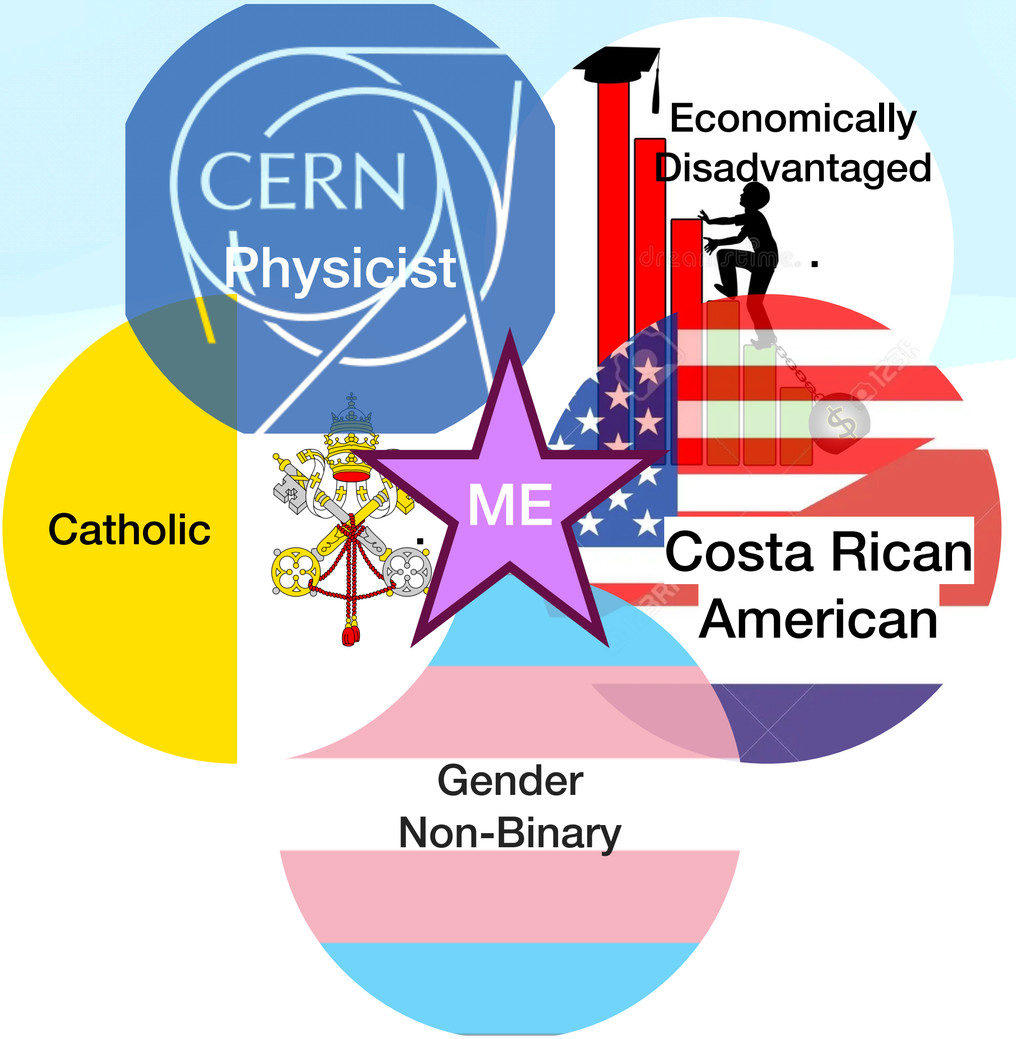

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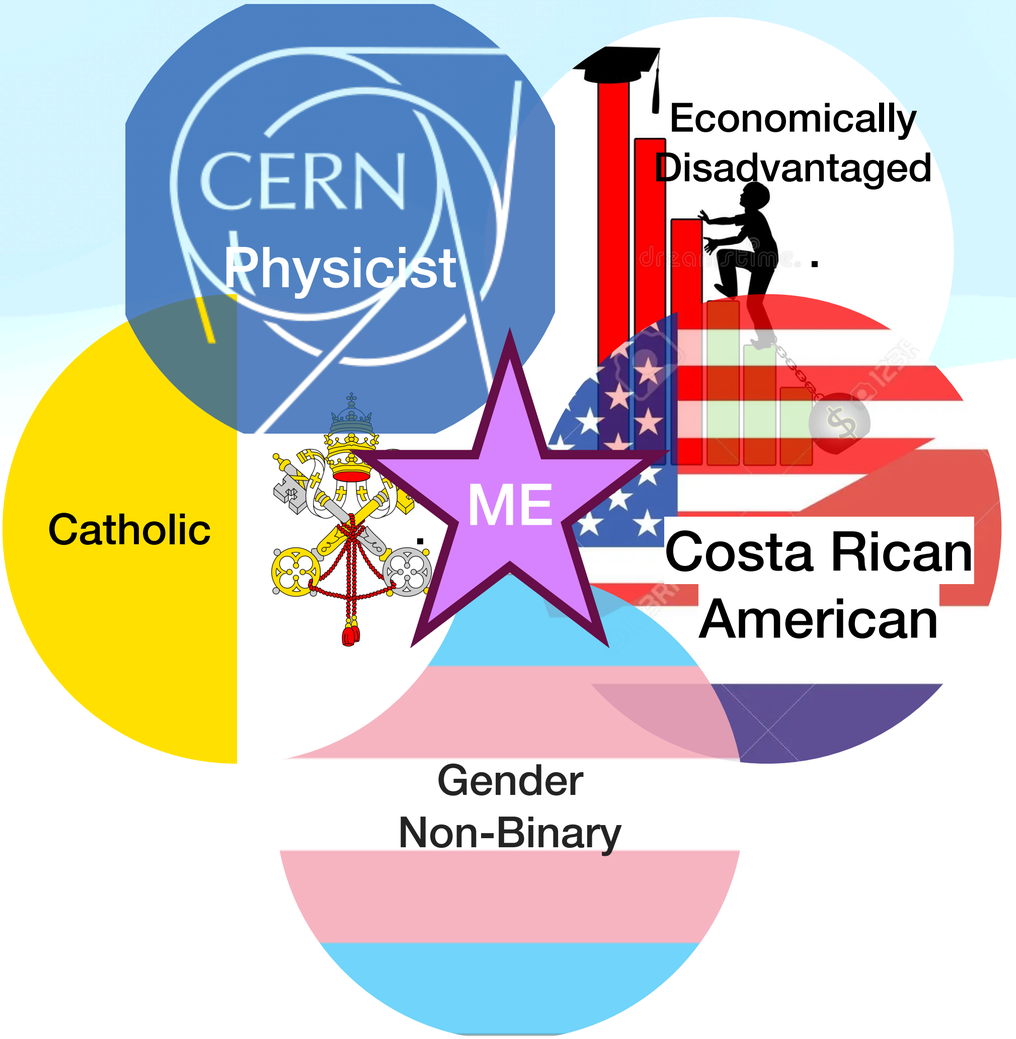
Intersectionality



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- Extensive DEI-work throughout academic career
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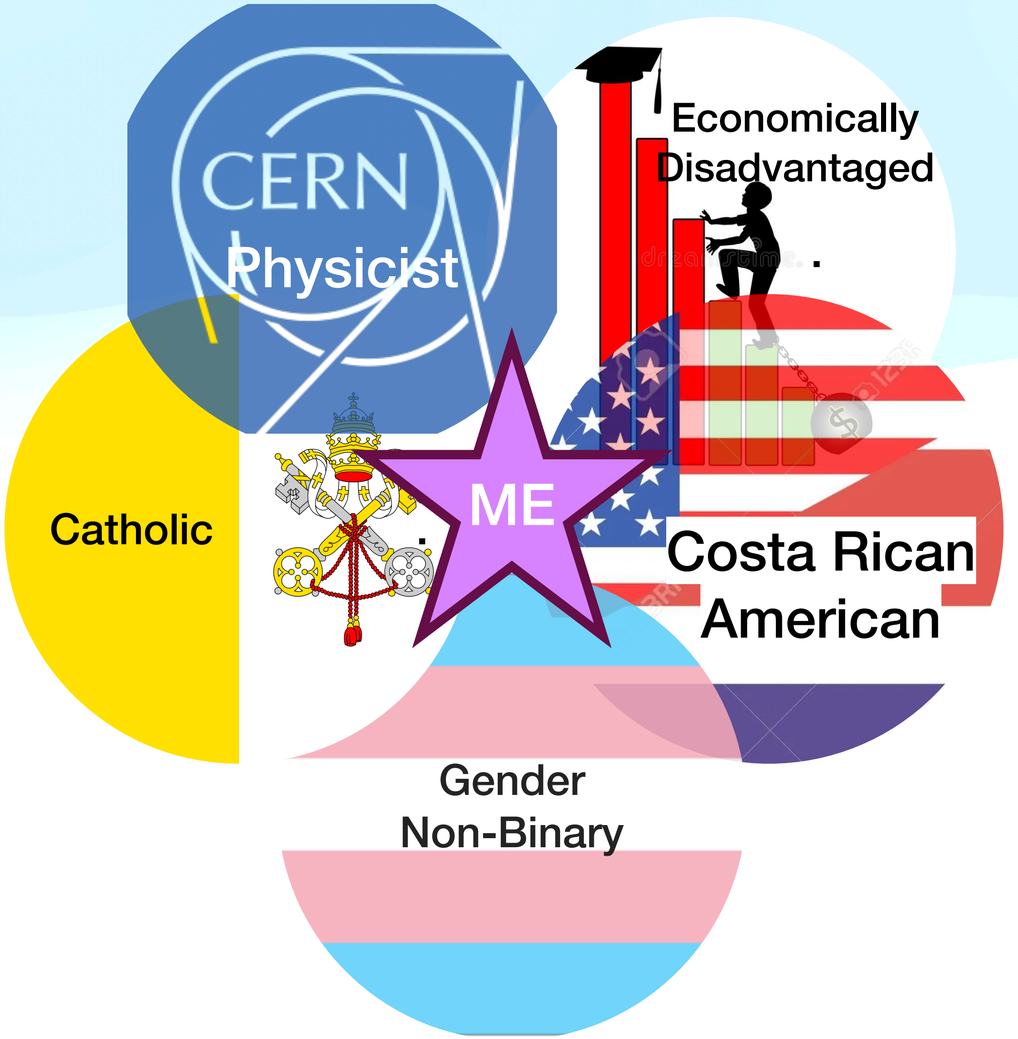

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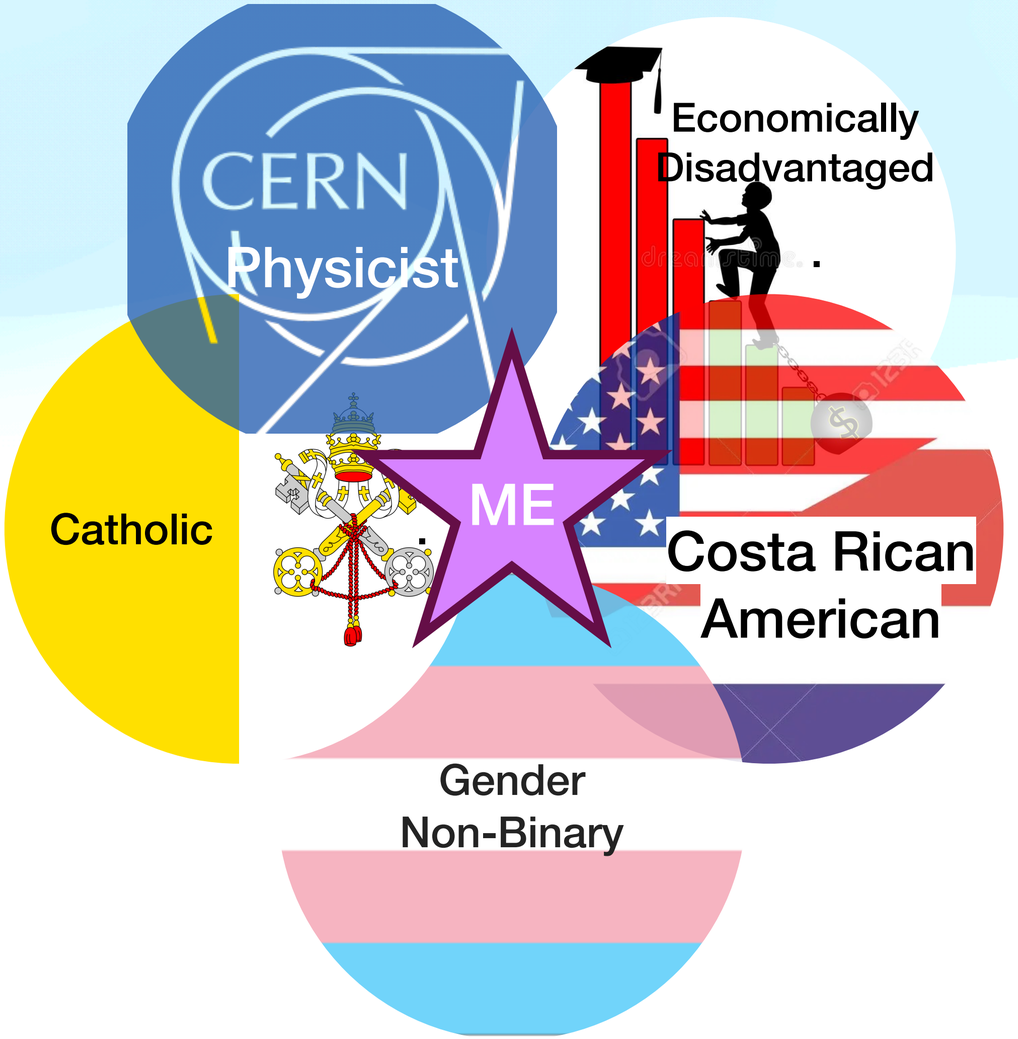

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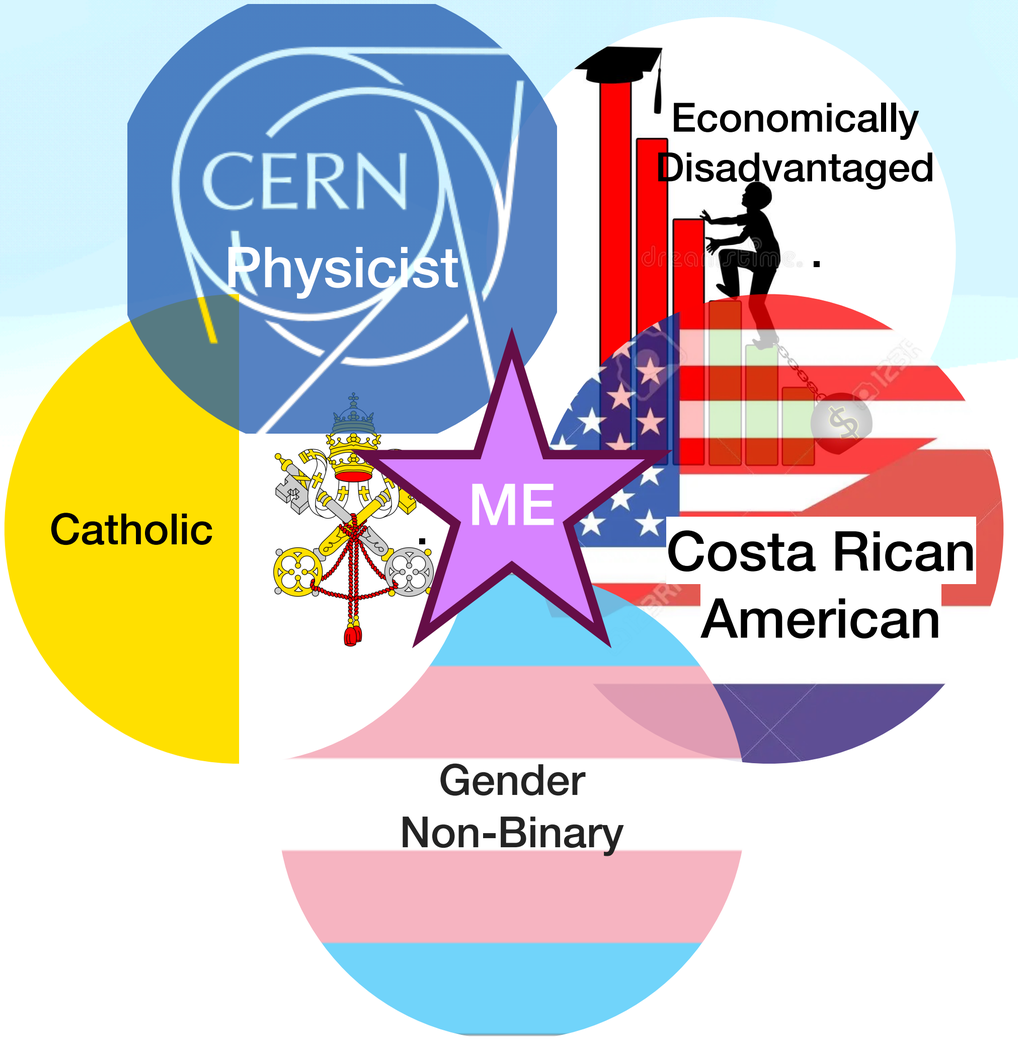

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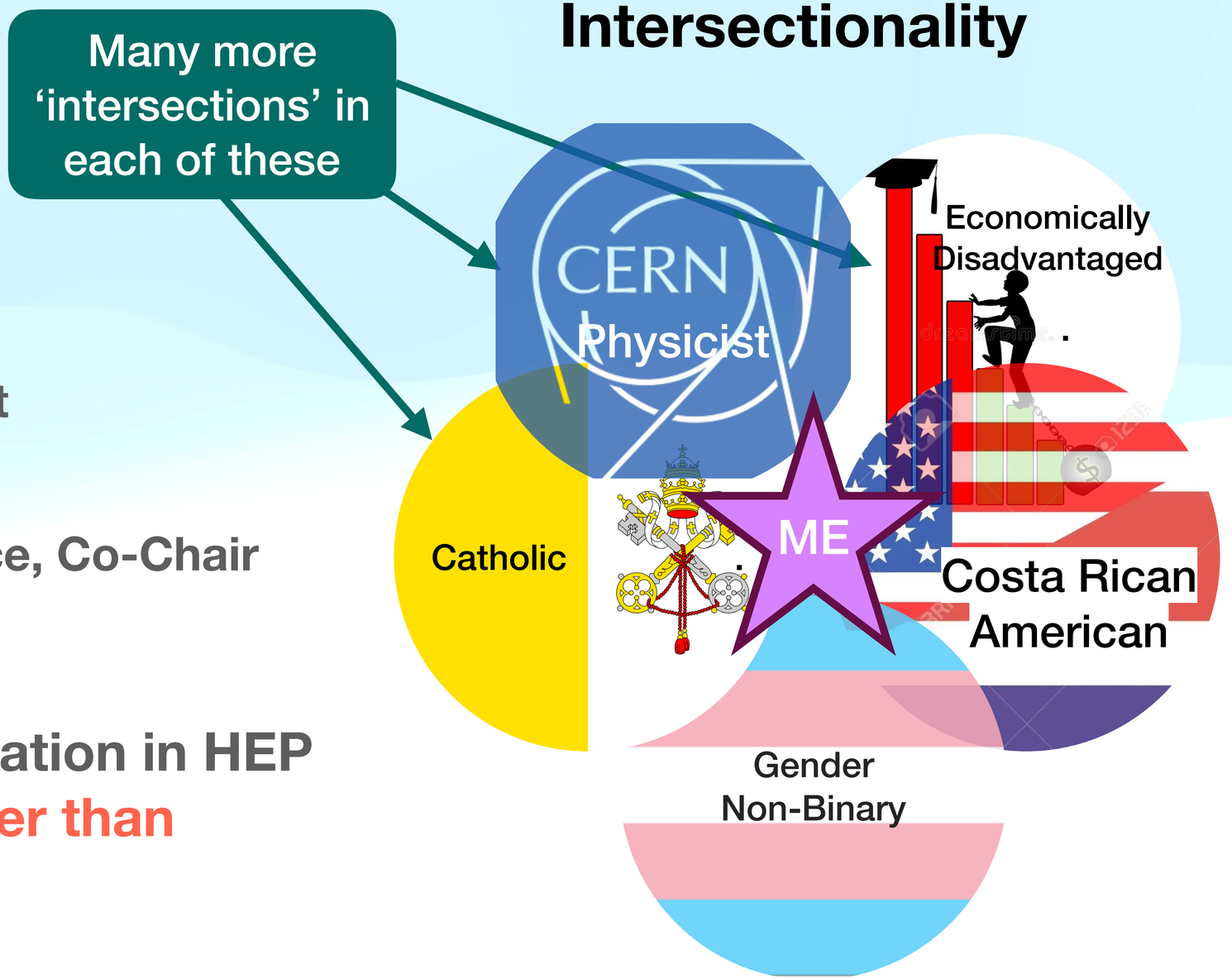

A Note on Language

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Better Practices

Use non-exclusionary gender-neutral language

~~He/She~~ → They

Speaking other languages often due of diverse team but can be exclusionary

Be compassionate, give reasonable benefit of doubt

Pronouns (Exposure)
What are they and
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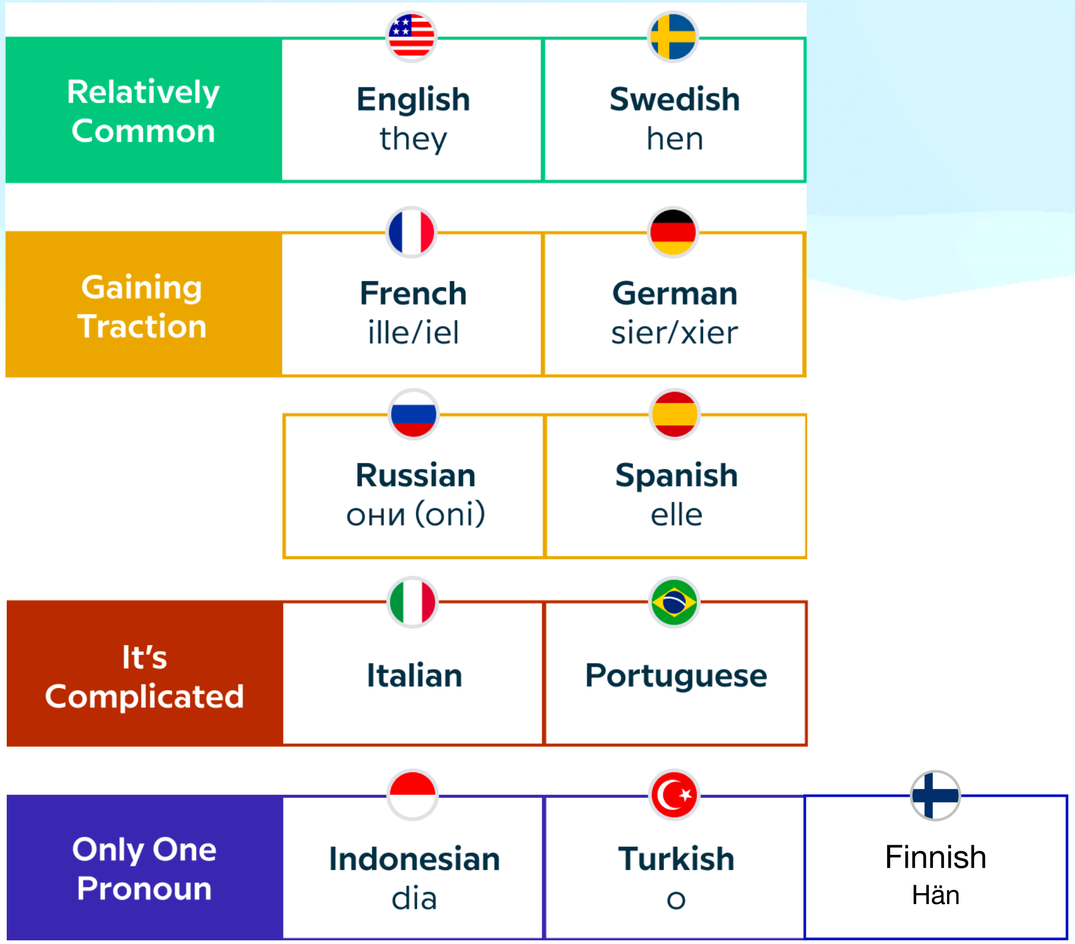

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Attainable Wish:
Respecting names+pronouns should be explicit in Codes of Conduct

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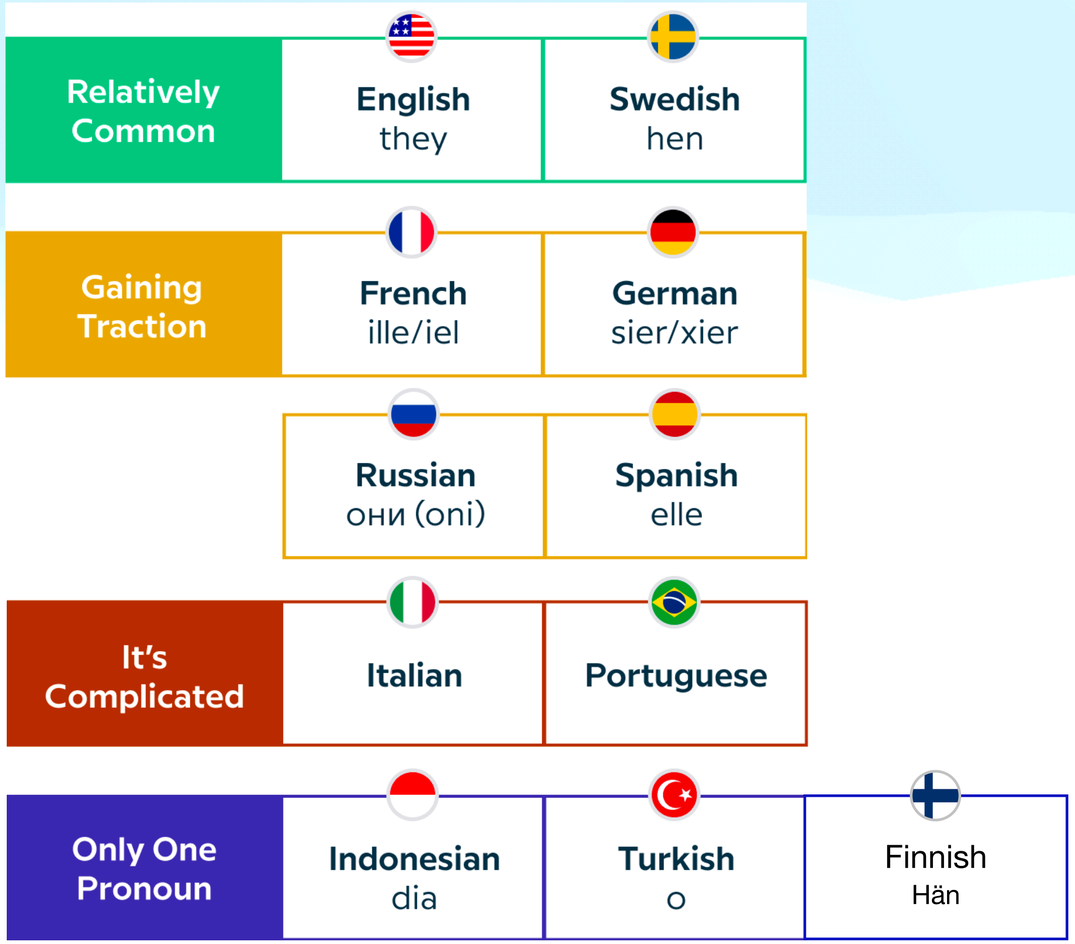
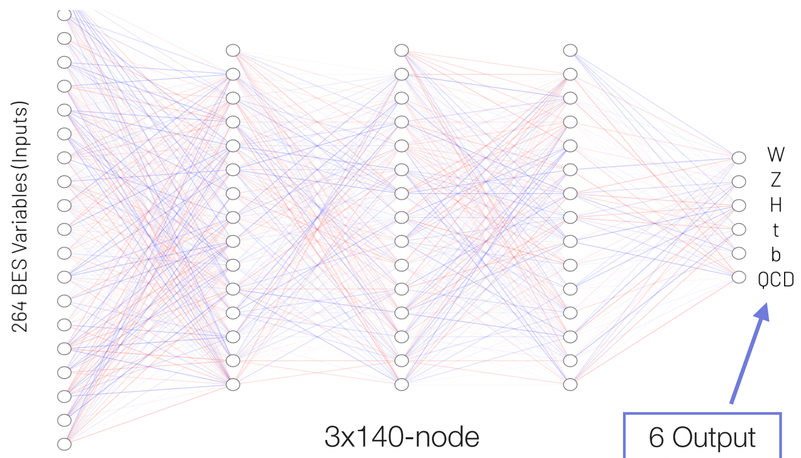
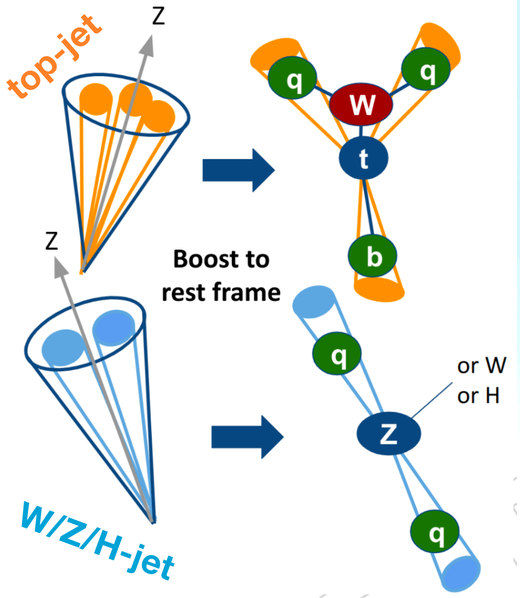
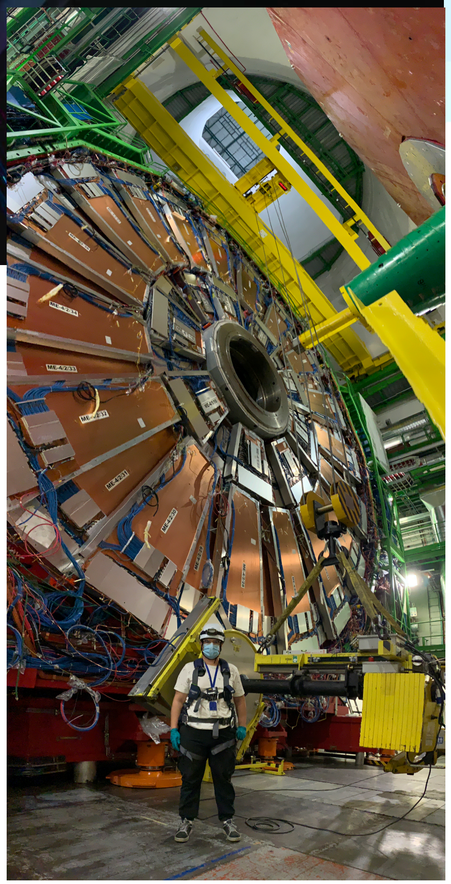


Research Interests

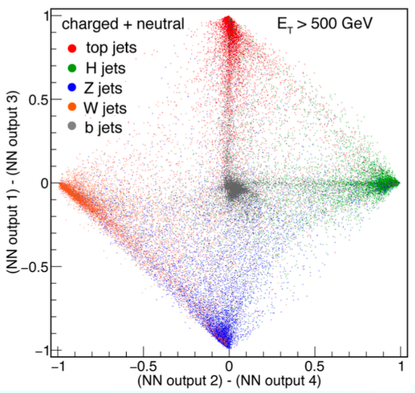
Boosted Event Shape Tagger

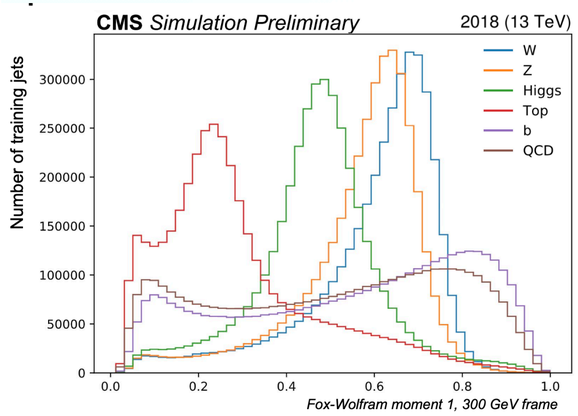


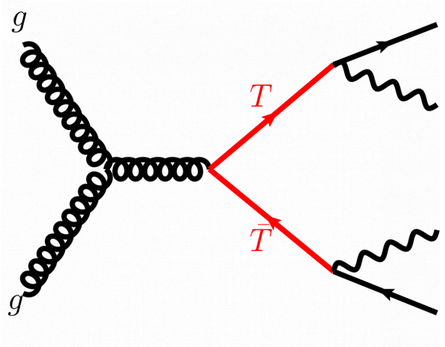




Phys. Rev. D 94, 094027







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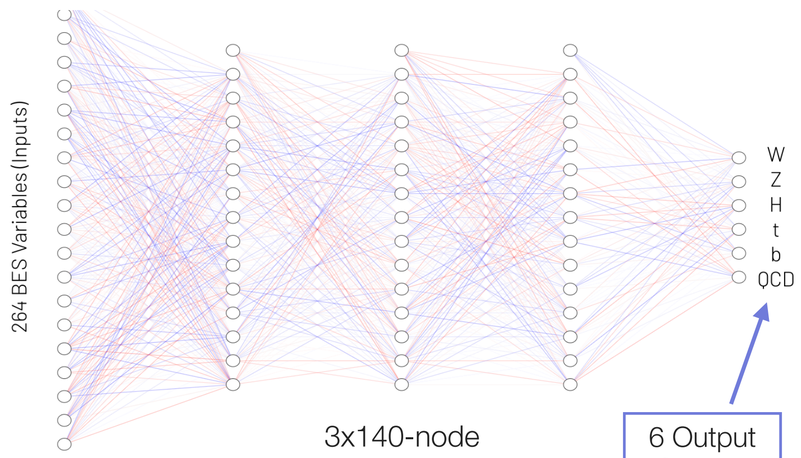

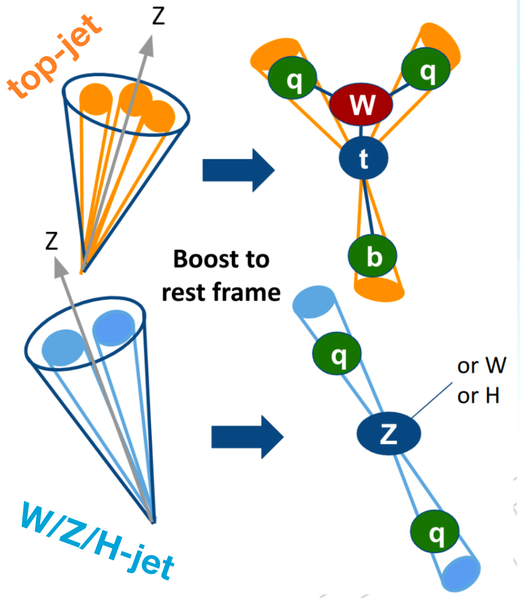

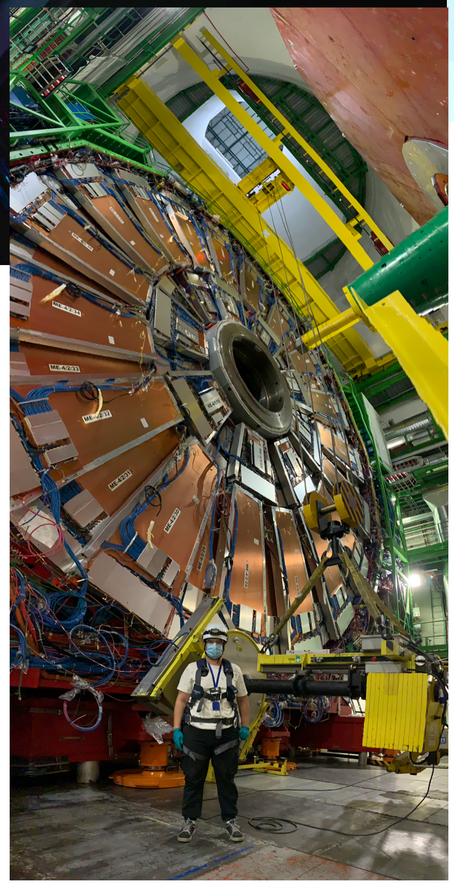

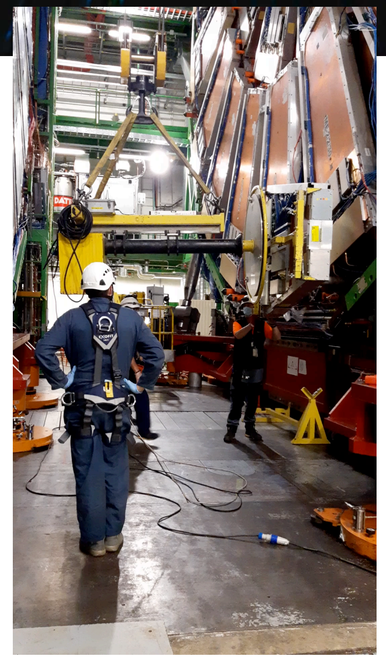

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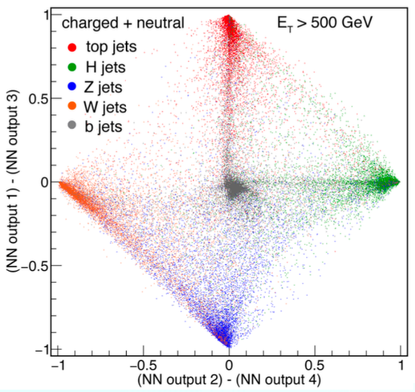

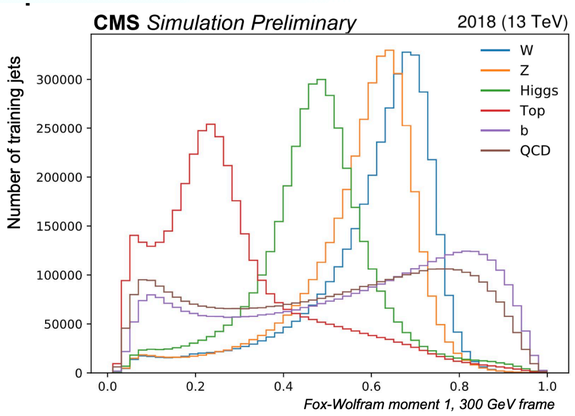

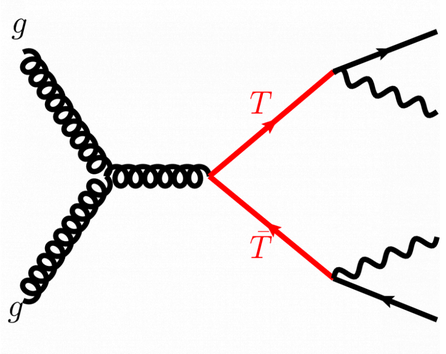

What does cross-cultural communication mean to you?

Modernization of Science

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…turns out Physics $\in$ Society

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- Globalization of society => Diversifying field => Widening gap of experience
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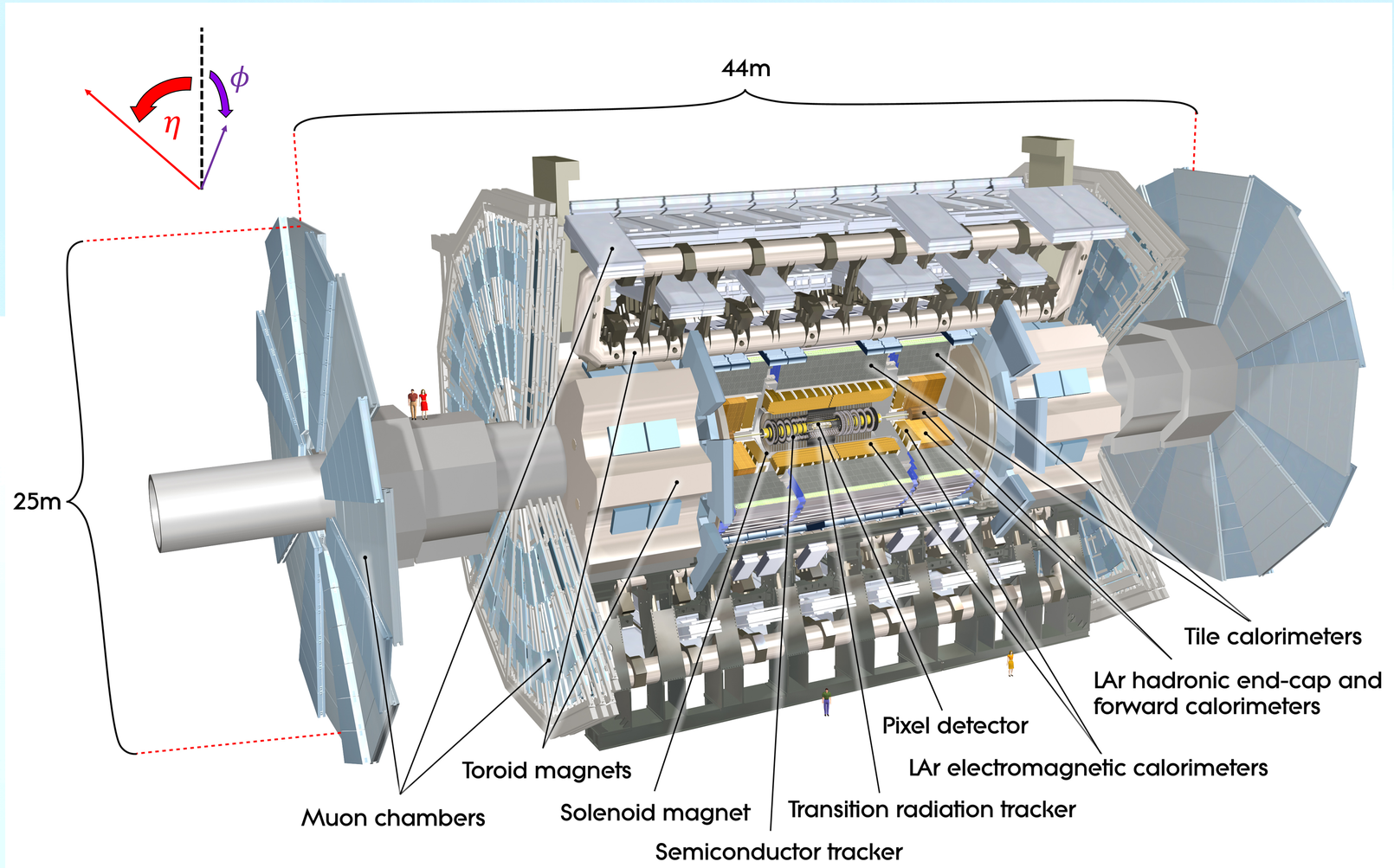
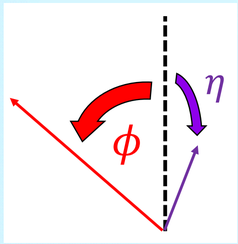
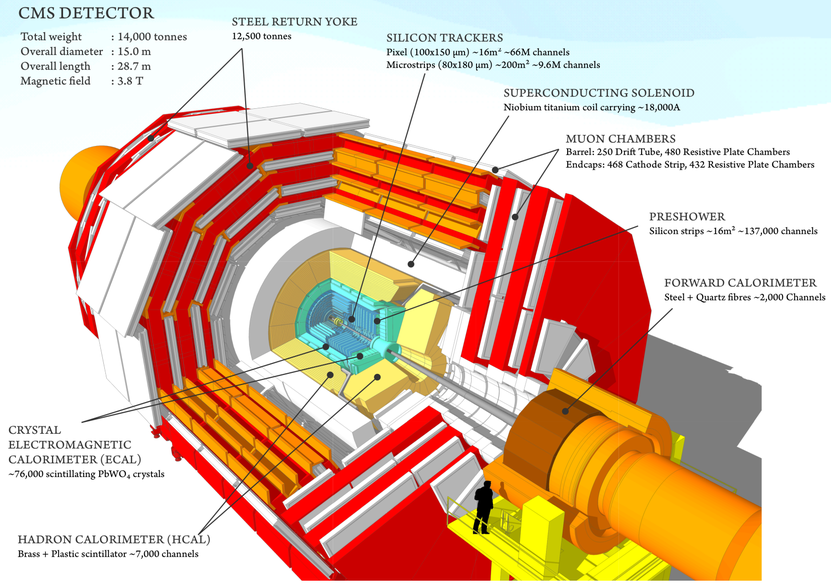
- Crux: Physicists (humans)
  —> Compounding effects of globalization
  —> It is our responsibility to adapt for the benefit of all

Fly-Through of ATLAS and CMS

What does a large collaboration look like?







*Approximate Relative Scale

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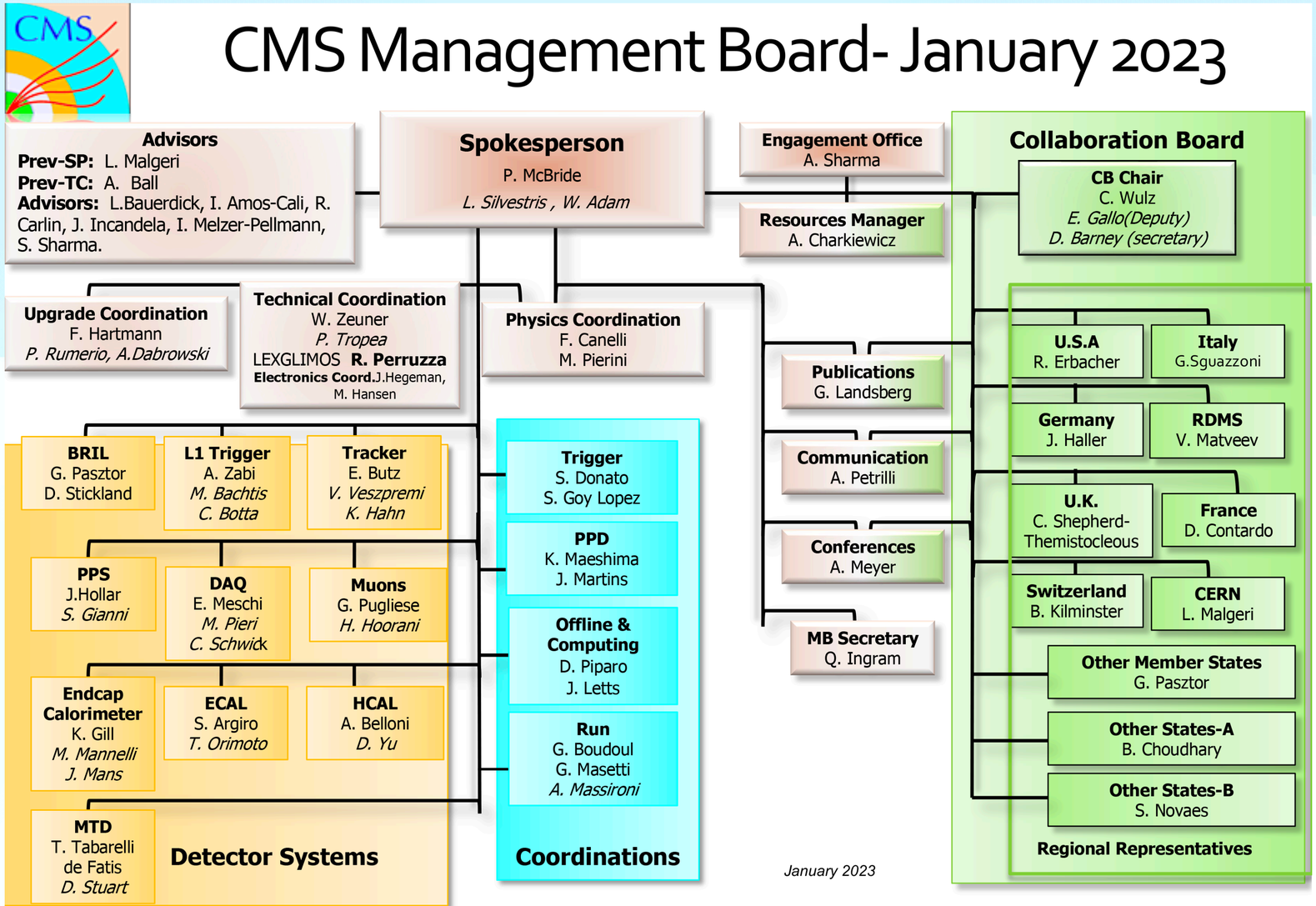

Similarities and Differences

Individuals/Collaboration

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Individual Tasks/Priorities

— Clear and distinct research direction

— Idea -> Grant -> R&D -> Paper
(~weeks to a few years)

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OR re-define leadership roles

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Collaboration Tasks/Priorities

- Flexible yet robust research direction
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  (5-10 years) (In waves)
- Set (old) rules, often difficult to change
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- ‘Service work’ often required for
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Many skills are transferable, relationships can weather change!

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Theory vs Other Fields

Let’s fill this out together

Why is this exercise useful?

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Other Fields’ Tasks/Priorities

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LHCb: Example of Global Science Initiative

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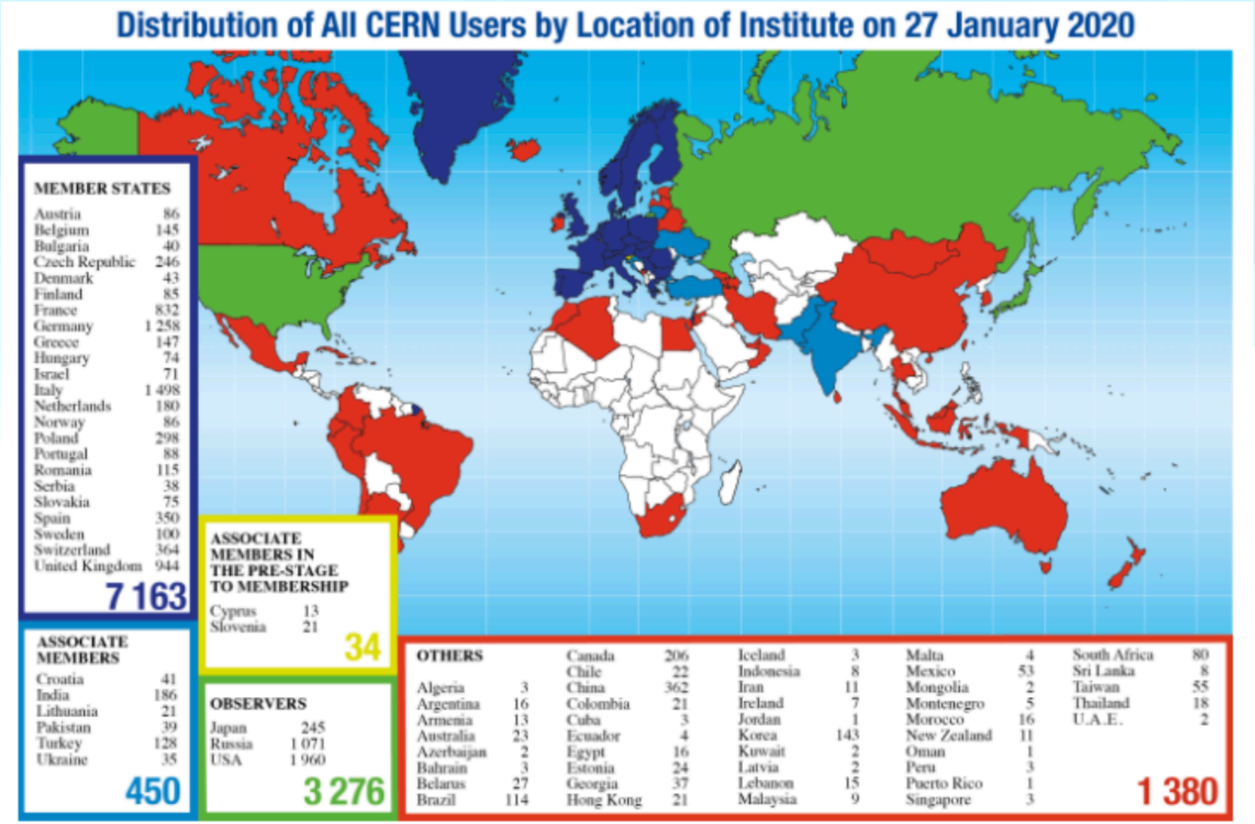

Figure 1: Distribution of CERN [10] users by location of their institutes. Users are not necessarily originating from the country of the university or laboratory they are affiliated with. Less than 5% of CERN users are associated with a developing nation.

LHCb: Example of Global Science Initiative

Global Science…or is it…

- Geographic diversity falls along economic lines
- Often membership/M&O fees agnostic to economic capacity
- Must remove systemic barriers to provide space for inclusion

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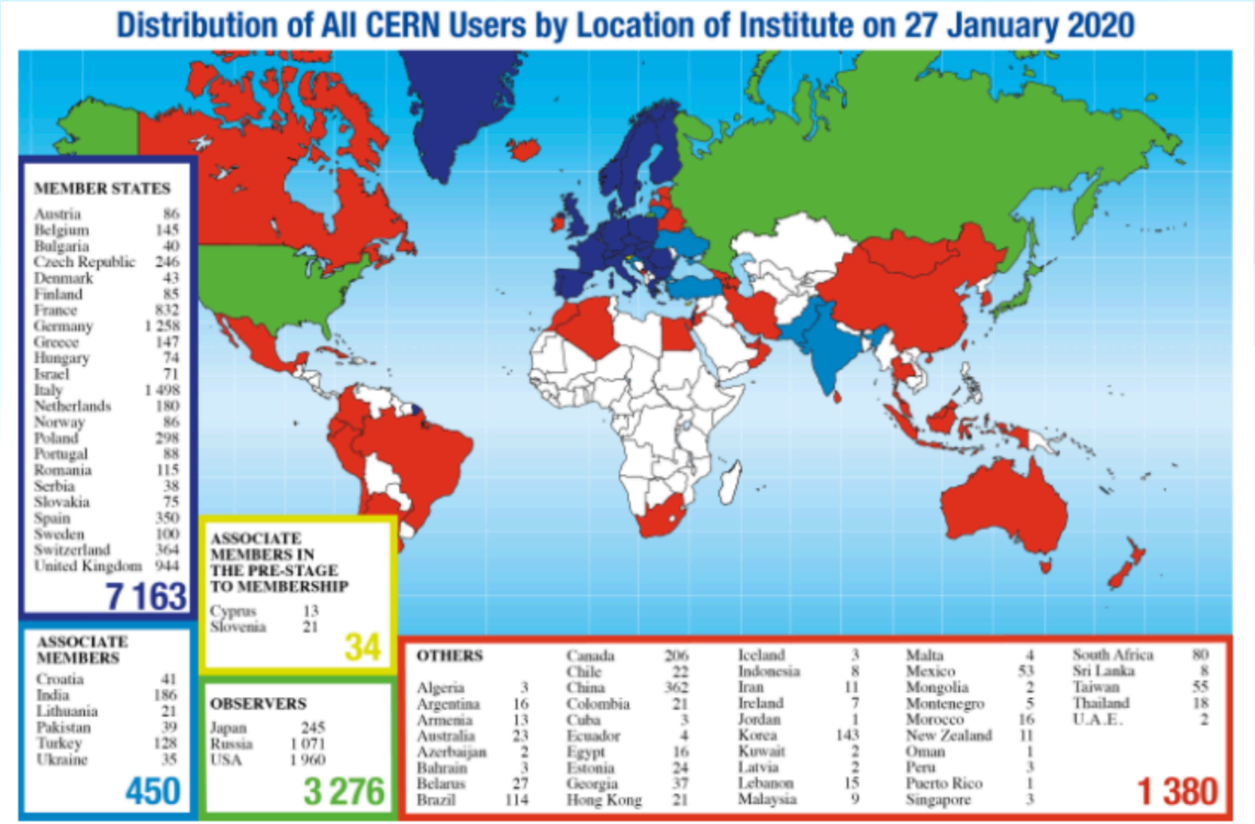

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Latest LHCb Collaborator: Costa Rica

- Match-making process crucial for success
- Required creation of new support mechanisms w/ CERN

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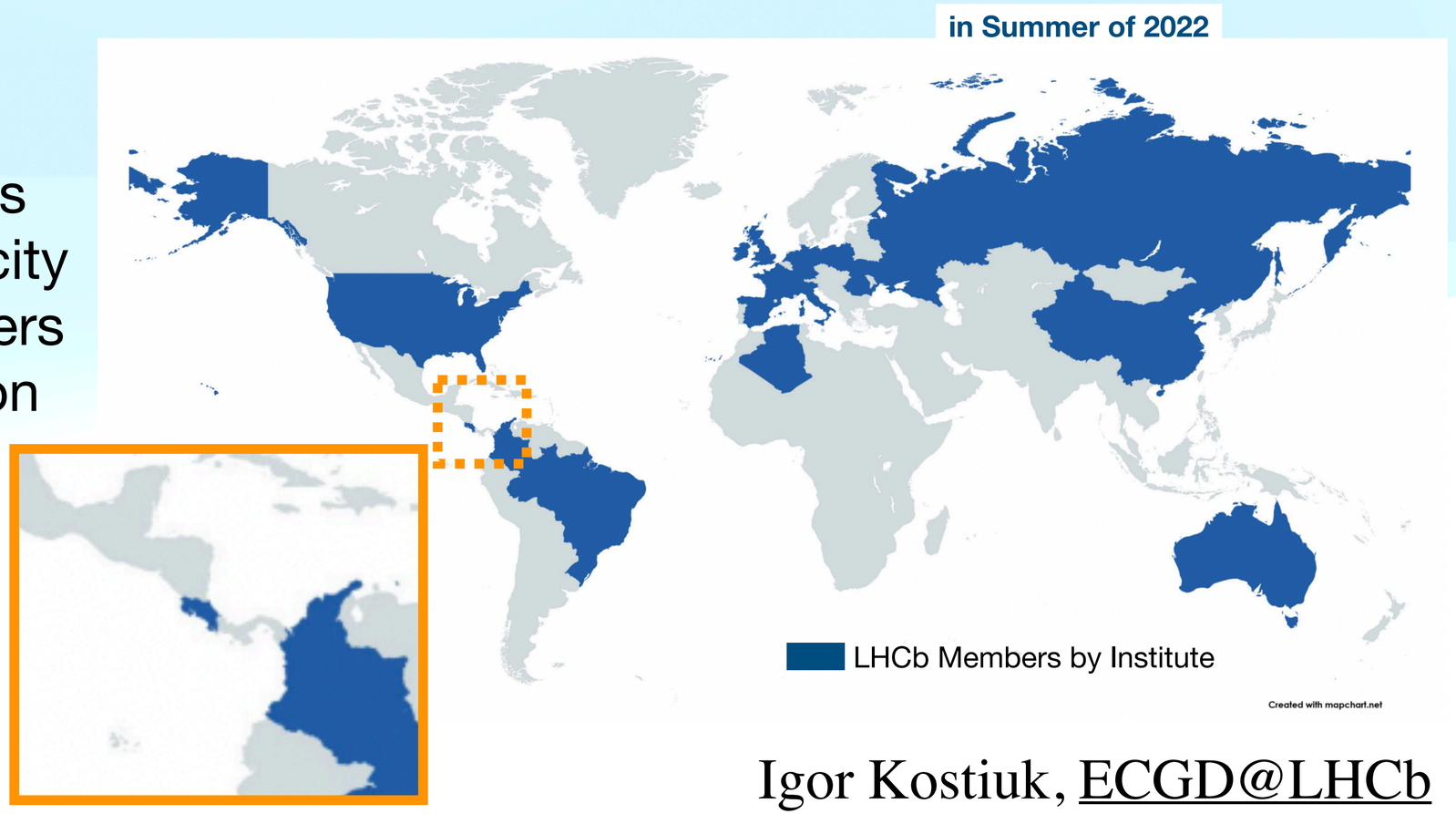

Igor Kostiuk, ECGD@LHCb

Why the US Should Care about HEP in Africa and Latin America: arXiv:2203.10060

Fluidic Data

In a Nutshell

- Data (Fluid)
  - Linked in real-time through monitoring data from IT
  - Fluid-air ratio and flow rate symbolizes data throughput
- Particles (Pods/Flowers)
  - Pods: Detector interactions
  - Flowers: Reconstruction
  - Details correspond to differing observables (mass, charge, etc.)

Goal: Mitigate language barriers in science communication, while providing a more natural/fluid perspective on data.
=> **Responsibility of learning on the visitor**

What qualities are important in a leader?

DEI ≡ Excellence

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Quality science is a result of:

— Cooperation

— Creativity

— Innovation

— Perseverance

— Perspective

The Diversity–Innovation Paradox in Science
Hofstra et al

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Dying for a Paycheck (Book)
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We need to reprioritize and do better

In Search of Excellence and Equity in Physics
arXiv:2203.10393 [physics.soc-ph]

What is Diversity?

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Ethnoracial Identities:
Does the collective community of physics look like the global/local population?

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Binary Male/Female + Gender-Diverse
(Non-Binary, a-gender, intersex, …)

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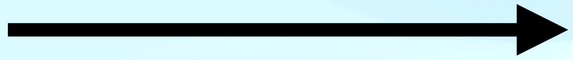

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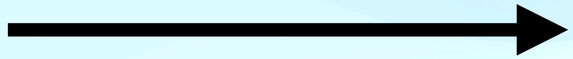

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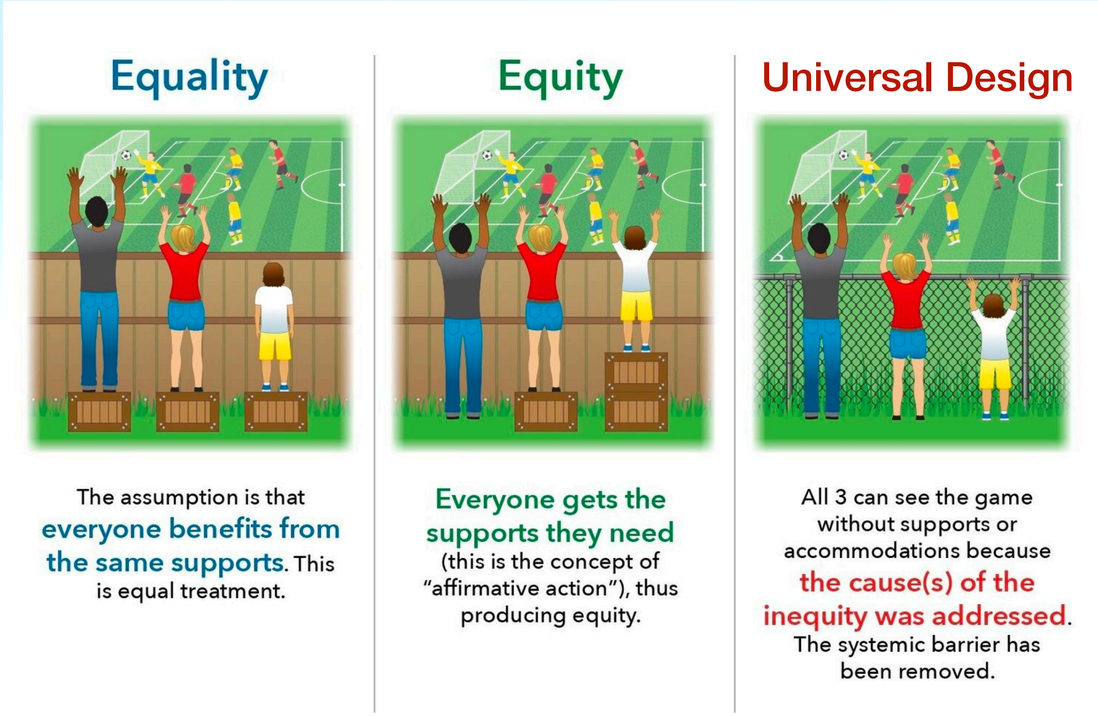
Let’s Talk Equity

Equality is the ideal, but in the real-world there are institutional barriers that force us to taketh path of equity



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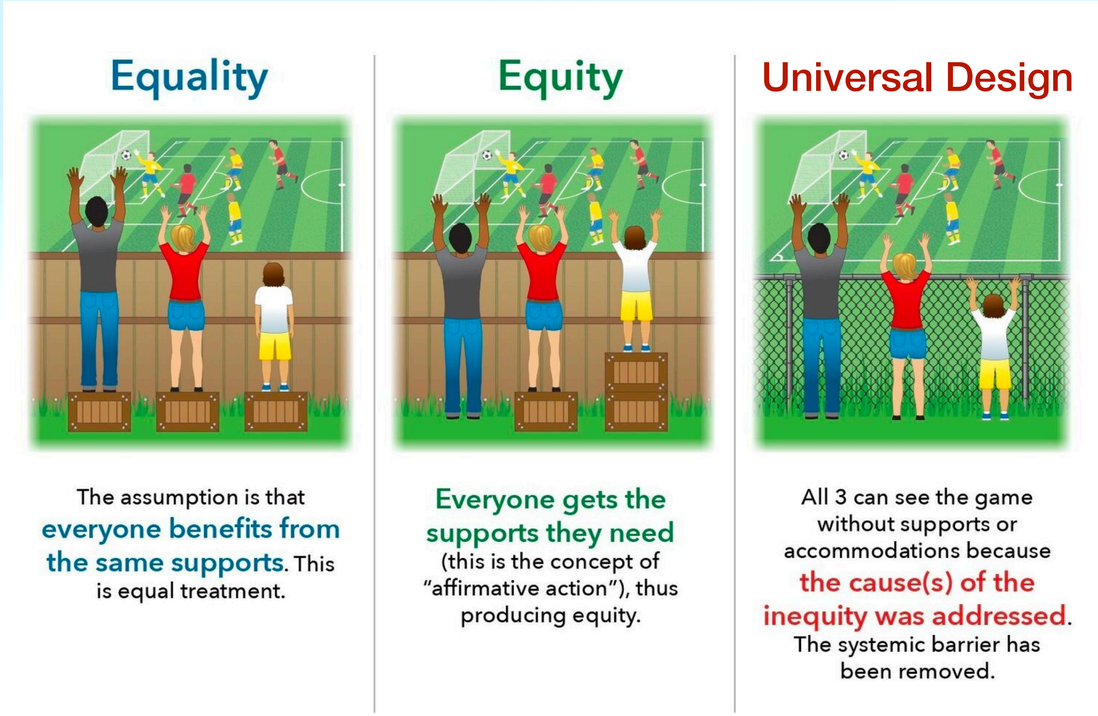

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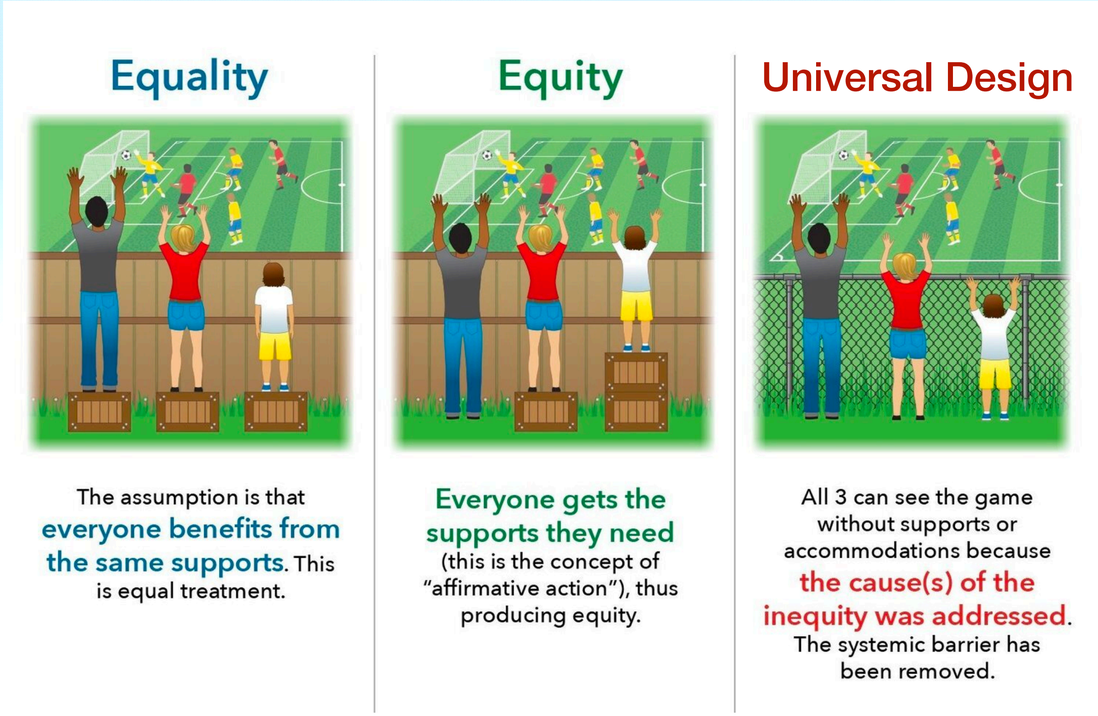

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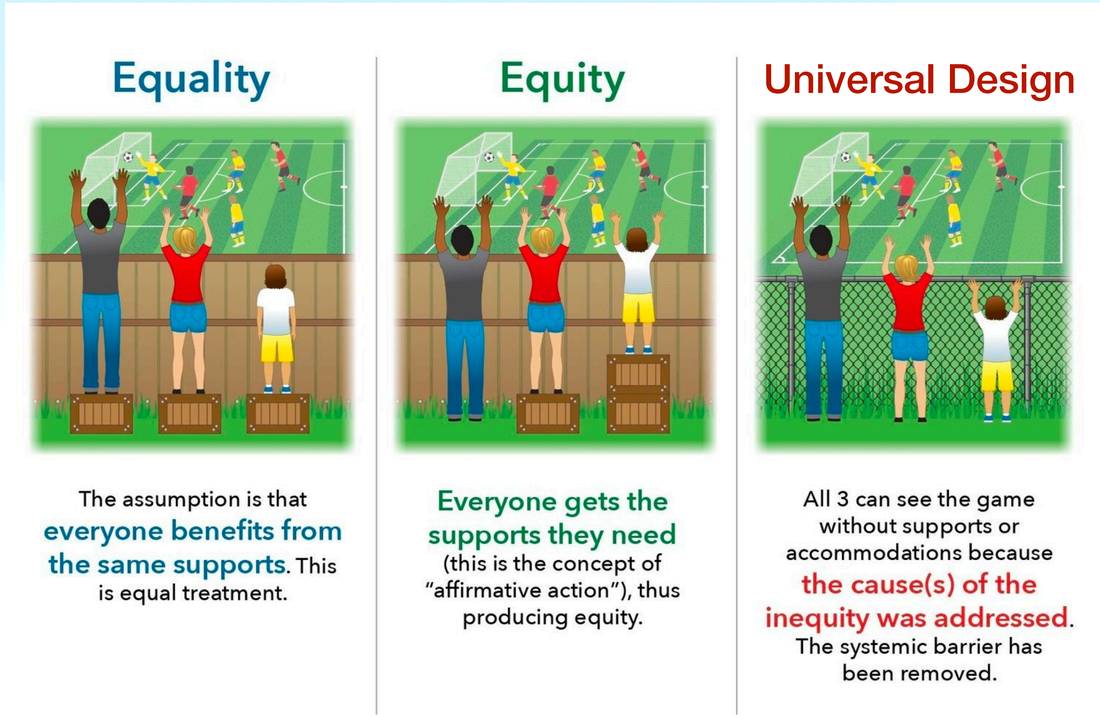

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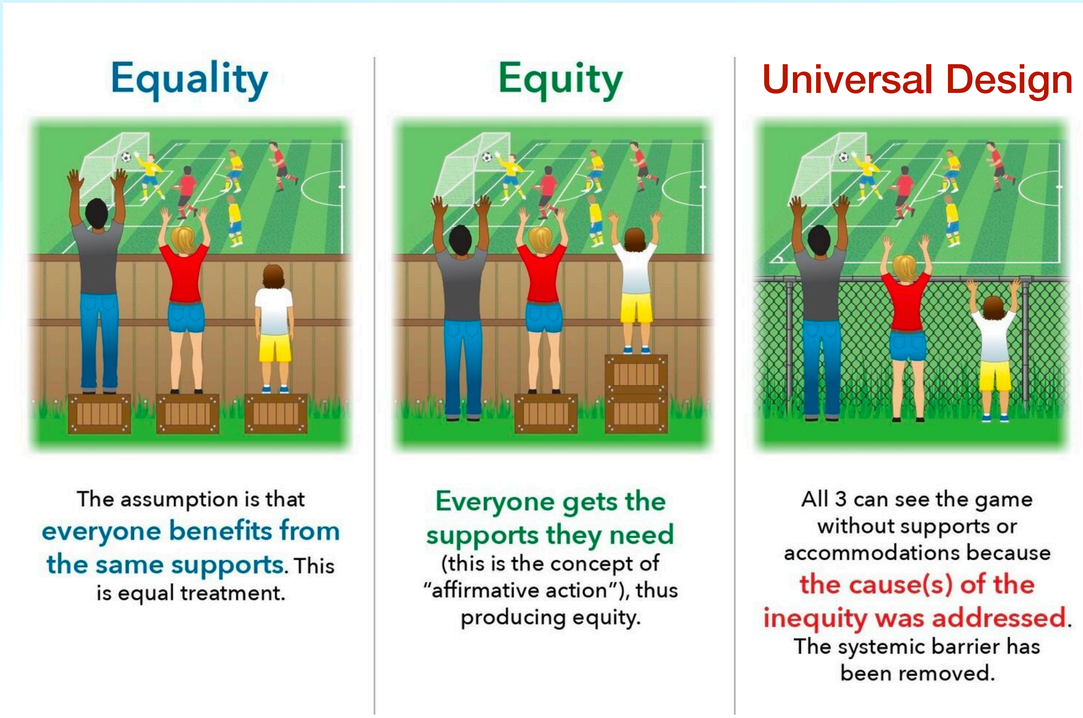

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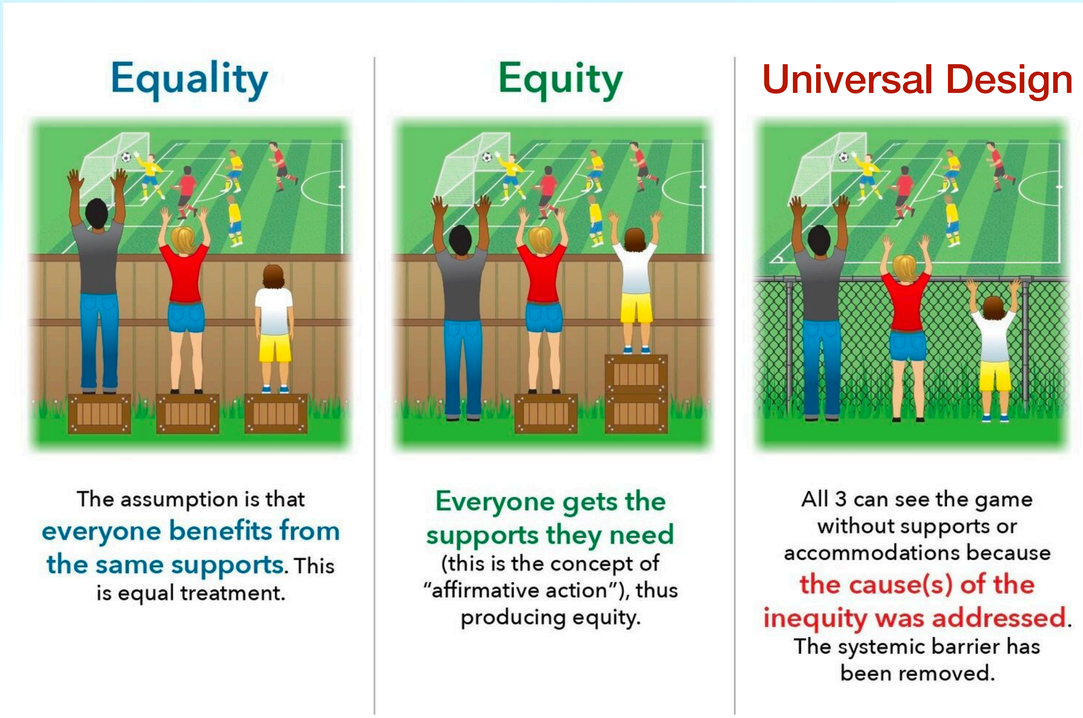

We Are Here

Inclusion

Providing a welcoming space to any individual includes facilitating exposure, guidance, and adjusting priorities

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- What behaviors do your groups encounter?

5-minute Exercise

Listening through someone’s message

Who is diversity for?

Can be experienced by ANY individual,
however VERY common among URMs

Imposter Syndrome

Cycles of self-doubt, depression, anxiety,
and guilt that persists despite education,
experience, or accomplishments

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Take on new task

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Procrastinate
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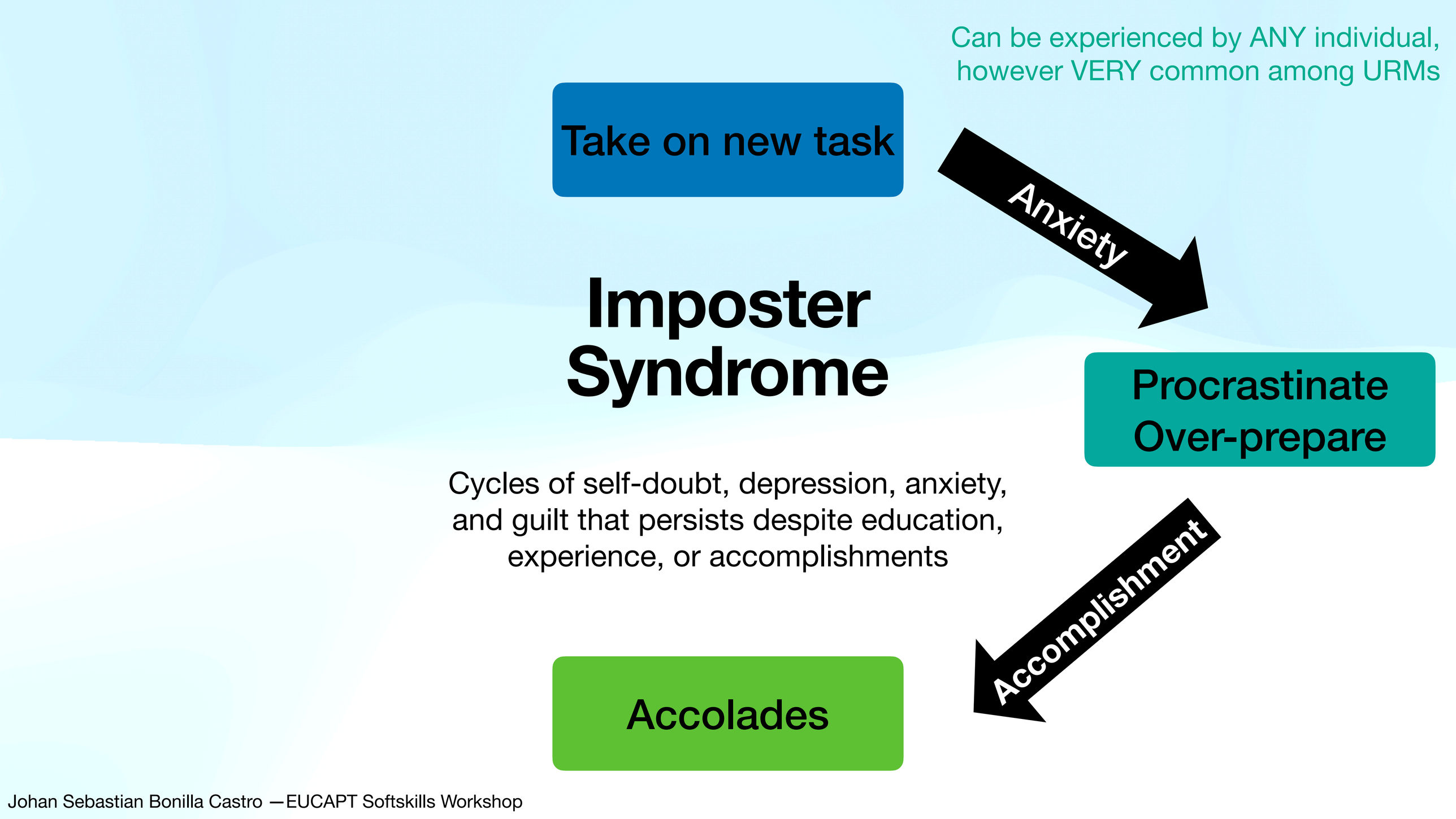

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Accomplishment

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Rationalize

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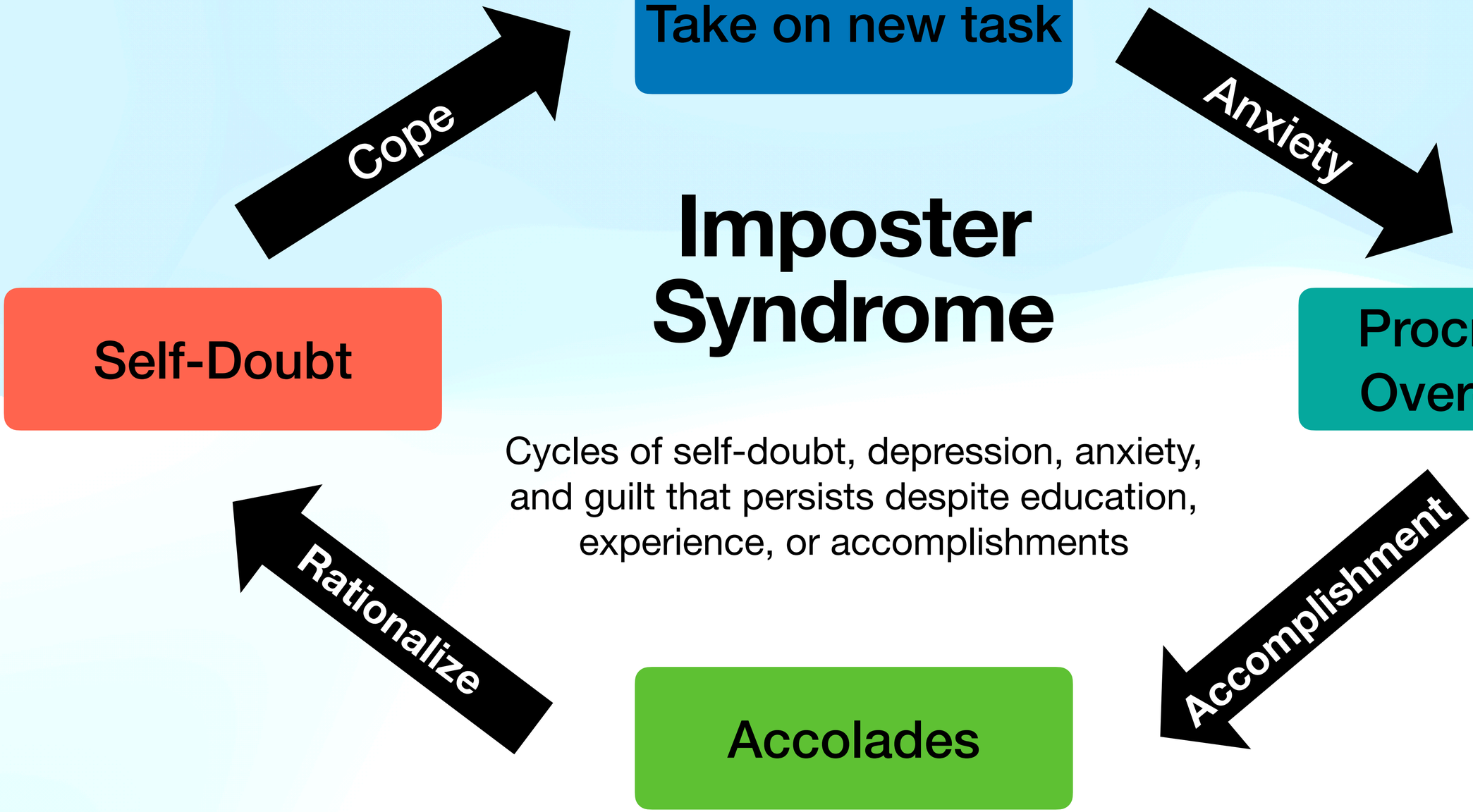

Support colleagues by validating and having a *human* connection

Can be experienced by ANY individual, however VERY common among URMs

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Cope

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Education is the Path to Allyship

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Exposure

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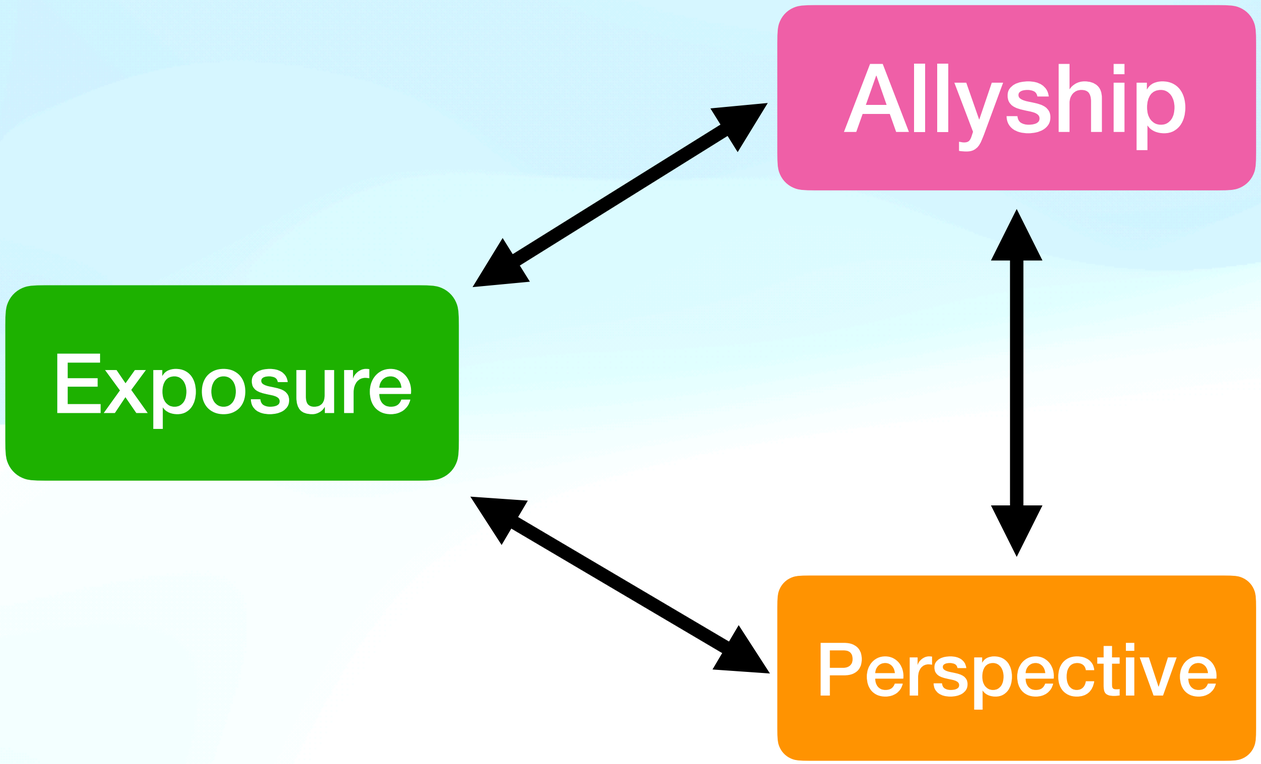

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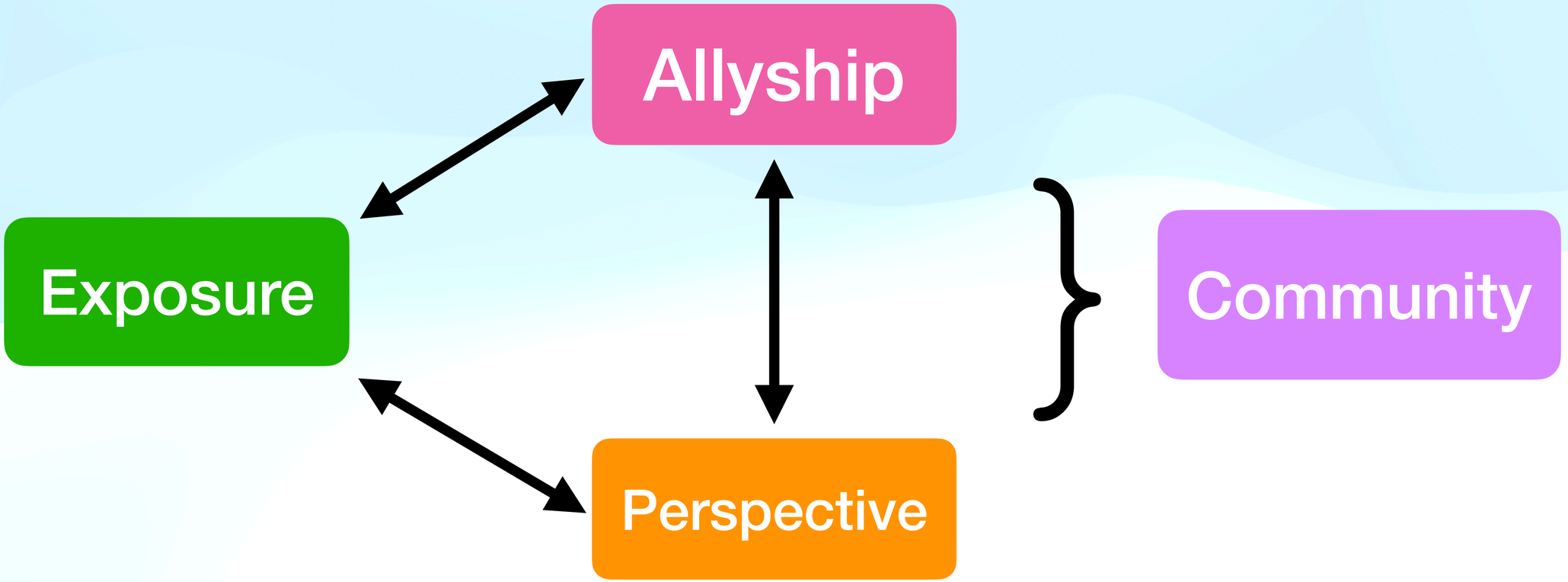

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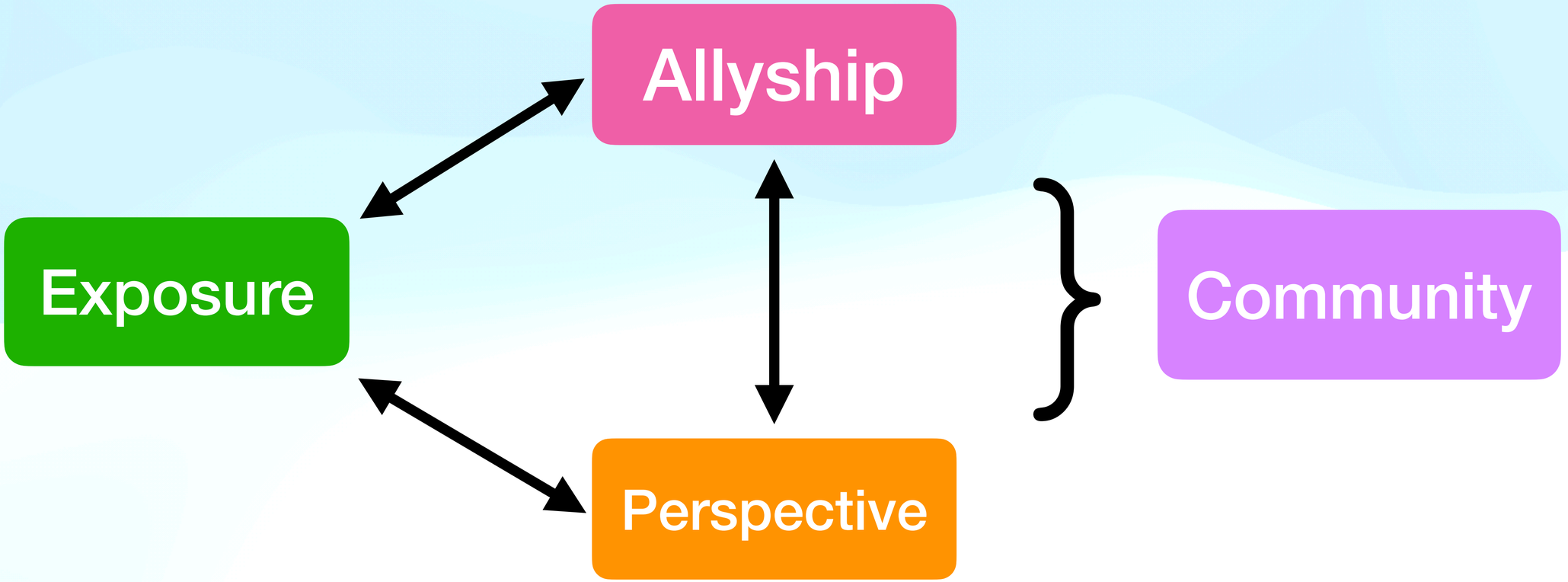

Be humble, be compassionate

Now What?

Educate Yourself

Now What?

Educate A Colleague

Educate Yourself

Now What?

Combat By-Stander Effect

Educate A Colleague

Educate Yourself

Give Up Privilege

Now What?

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    Changes of perspective/priorities at an individual and collective level

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  What can we do about it?
  - Past: Validate colleagues' experiences, personal and inherited
  - Present: Listen, support/champion, and be humble
  - Future: Actively Prioritize DEI skills and deficiencies
    Recommendations in each CP, Topical Group and Frontier reports

What qualities are important in a physicist?

Compare to what you answered before

“I’ll leave you with this take-home:
‘Diverse perspectives yield the best science’ is a true statement,
but it’s one that commodifies the lived experience of marginalized
people by reducing them to their contributions to productivity.
It’s a capitalistic framework that shirks the basic truth that cultivating
a field where the norm is respecting the humanity and validity of all
people is the right thing to do for no reason other than it is right.
If this is not enough of a justification for you, you are the problem.”

#BlackInAstro Experiences: KeShawn Ivory
(Link to Article)

Thank You