Snowmass Accessibility Report (but mostly, personal perspective)

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U.S. DEPARTMENT OF ENERGY | Stanford University

SLAC NATIONAL ACCELERATOR LABORATORY

A bit of context about your presenter

- Lead Scientist at SLAC and Kipac (Stanford). “Dark Matter Data Wrangler”. Deputy operations manager for the LZ Dark Matter experiment (Software and Computing); science operations lead for Fermi-LAT.
- Born in Italy, educated in Italy and France. I moved to the USA in 2006 and became a citizen a week ago 🇺🇸
- Founding chair and current member of the DPF Ethics Advisory Committee (accessibility advocacy etc.)
- Skeletal Dysplasia diagnosis: very short stature; severely limited mobility; 13 surgeries and counting.

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- I can usually walk unassisted but occasionally need to rely on a cane/walker. I really don’t do well with stairs

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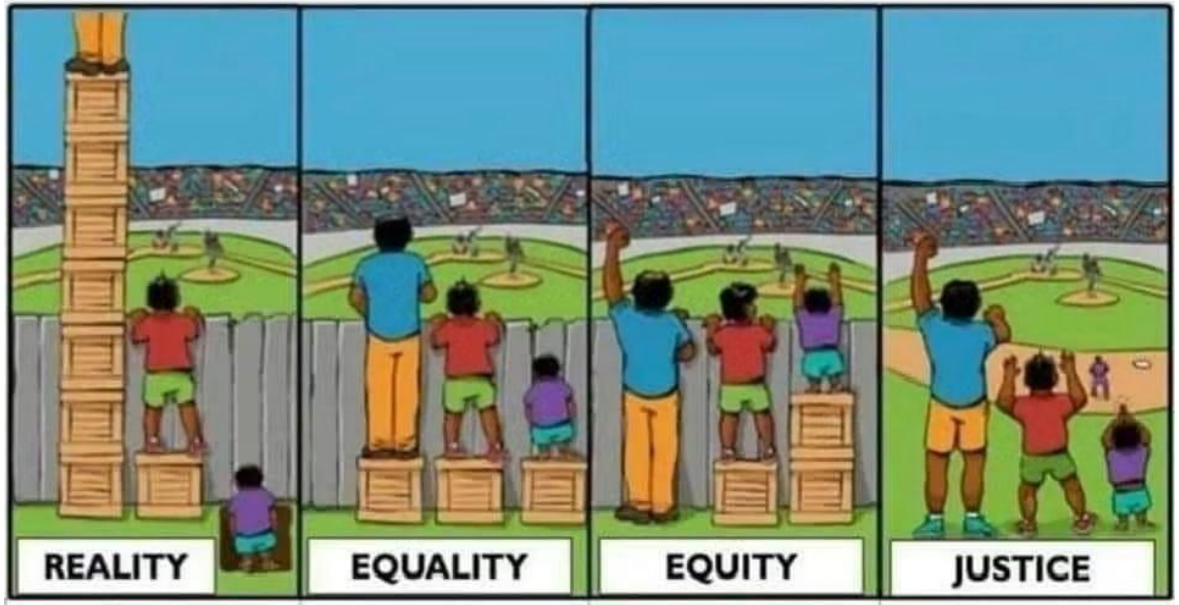
- I am a software/computing/ML expert, but can be deployed as “confined space specialist” in a pinch.

Why should HEP care about accessibility?

- All humans experience “disability” in the first couple years of their lives (they cannot walk, talk, eat or get dressed on their own, etc.).
- Most humans experience illness and disability towards the end of their lives. Many physicists are still actively doing science at that stage.
- 26% of adults in the US experience some type of disability (14% are mobility impaired, 11% have a learning disability, 10% have a sensory impairment - hearing and/or vision).
- My personal impression of our community: mobility/sensory underrepresented, learning disability (neurodiverse) overrepresented.

Another way of looking at it...



REALITY	EQUALITY	EQUITY	JUSTICE
One gets more than is needed, while the other gets less than is needed. Thus, a huge disparity is created.	The assumption is that everyone benefits from the same supports. This is considered to be equal treatment.	Everyone gets the support they need, which produces equity.	All 3 can see the game without supports or accommodations because the cause(s) of the inequity was addressed. The systemic barrier has been removed.

Accessible spaces make the experience more enjoyable for everyone

Accessible spaces are better for everyone!

US airports are ADA compliant!

Accessible spaces are SAFER spaces!!!

SLAC

WHAT IS THE OSHA FATAL FOUR?

2018 Fatality Statistics

Falls
338 Fatalities
(33.5%)

Struck By
112 fatalities
(11.1%)

Electrocutions
86 Fatalities
(8.5%)

Caught In/Between
55 fatalities
(5.5%)

Out of 4,779 worker fatalities in private industry in 2018, 1,008 or 21.1% were in construction.

20%

Falls accounted for 20% of allowed lost time claims with the WSIB

1 in 4 More than 1 in 4 falls claims included falls to a lower level

Fall on the same level was the leading injury in these sectors:

Education | Municipal | Pulp & Paper

Slips

- Slippery materials (water, ice, snow, oils, powders, granular solids)
- Slippery surfaces (polished tile or stone, smooth painted concrete or metal)
- Inappropriate footwear for the surface

Trips

- Uneven walking surfaces
- Unexpected or unseen steps, platforms or thresholds
- Wrinkled carpeting, or loose rugs or mats
- Obstructions such as an open bottom file cabinet drawer
- Exposed or loose cables, wires or cords
- Clutter on the floor or stairs

CCOHS.ca
Canadian Centre for Occupational Health and Safety

These are all ADA violations!

Accessible spaces make “big science” easier!

Icarus was extracted from Gran Sasso in one single piece

Accessible spaces make “big science” easier!

SLAC

Guess what else was easy to do at Gran Sasso… 😅
I was able to function as an experimental physicist

Most of Snowmass happened during the pandemic

- Travel restrictions have made it a lot easier to “attend” conferences, meetings and workshops all over the world
- … but a lot harder for people with sensory impairments or learning/neurological issues

Accessibility in High Energy Physics: Lessons from the Snowmass Process

K.A. Assamagan[1], C. Bonifazi[2], J.S. Bonilla[3], P.A. Breur[4], M.-C. Chen[5], A. Roepe-Gier[6], Y.H. Lin*[7], S. Meehan[8], M.E. Monzani[9,10,11], E. Novitski[12], and G. Stark[13]

ABSTRACT

Accessibility to participation in the high energy physics community can be impeded by many barriers. These barriers must be acknowledged and addressed to make access more equitable in the future. An accessibility survey, the Snowmass Summer Study attendance survey, and an improved accessibility survey were sent to the Snowmass2021 community. This paper will summarize and present the barriers that prevent people from participating in the Snowmass2021 process, recommendations for the various barriers, and discussions of resources and funding needed to enact these recommendations, based on the results of all three surveys, along with community members' personal experiences.

https://arxiv.org/abs/2203.08748

RECOMMENDATIONS FOR ALLEVIATING BARRIERS

- Whitepaper provides detailed recommendations for a number of barriers
- Recommendations based on community members' lived experiences and professional resources (US ATLAS Annual Meeting Checklist)
- Conference organizers should refer to recommendations to sufficiently budget and plan in advance
- Provided recommendations are neither exhaustive nor absolute
- **Always defer to person in need when providing accommodations!**

ATLAS EXPERIMENT "YOU ARE WELCOME HERE!"

RECOMMENDATIONS FOR ALLEVIATING BARRIERS

- Recommendation highlights:
  - **Physical** - seating at all breaks and social events, no construction around buildings, hold events in ADA compliant buildings, designate conference contact
  - **Auditory** - provide live captioning for events, generate transcripts for recorded meetings (includes case studies and cost analysis for recent HEP events)
  - Visual - require presentations have colorblind-friendly palettes, translate LaTeX for use with screen readers, ensure websites are screen reader-friendly

ATLAS EXPERIMENT "YOU ARE WELCOME HERE!"

RECOMMENDATIONS FOR ALLEVIATING BARRIERS

- Recommendation highlights:
  - Financial - provide travel grants and sliding-scale conference registration fees for those in need (particularly useful for EC members)
  - Caretaking Responsibilities - provide childcare support or accompanying caregiver travel (disproportionately affects EC with young children)
  - Mental Health - quiet rooms, cutting unnecessary meetings, provide a welcoming intellectual space, abide by a Code of Conduct

ATLAS EXPERIMENT "YOU ARE WELCOME HERE!"

A test run for several of our whitepaper recommendations

Many “flavors” of accommodation at Seattle CSS

Some accommodations were **very** visible:

- Example: custom furniture

“In general, are there barriers…”

Many “flavors” of accommodation at Seattle CSS

Some accommodations were **very** visible: ASL interpreters

Many “flavors” of accommodation at Seattle CSS

Some accommodations were **very** visible:

- Live captions for all plenary sessions (and several of the parallels)

Was this uniformly well received?

- No. One speaker, who had prepared very crowded slides, expressed some annoyance (very publicly!) at the presence of captions on the screen
- The pushback to the pushback was swift and pretty overwhelming (the EAC received something like 100 complaints about the complaints)

I call this a success. **We were seen** by the community, and this **generated a lot of conversation.** All subsequent speakers **added space for captions** to their slides.

Captioning should be a no-brainer:

- It helps anyone who cannot hear well (age, accent, environmental noise), has trouble with sustained focus, or ESL folks who prefer subtitles.
- It provides a real-time transcript for accountability/transparency, and obviates the need for proceedings.

The most impactful talk at the Seattle CSS

12:50 PM

My Personal Experience ¶

20m

Hitoshi will share his stories regarding mental health.

Speaker: Hitoshi Murayama (University of California, Berkeley & IPMU, University of Tokyo)

mental illness.pptx

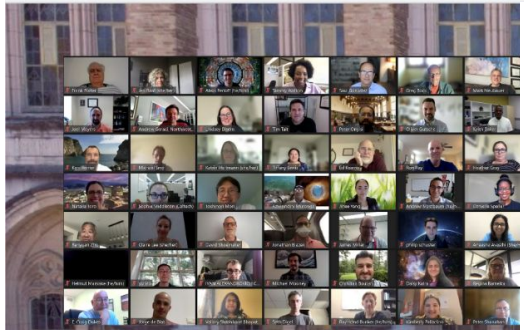
- It is hard to overstate the impact of the P5 chair talking about his personal struggles with mental health. This was absolutely revolutionary for the field.
- It inspired MULTIPLE of my colleagues to seek help with their mental health.
- It inspired me to get treatment for a neurological condition which I had all along.
- It inspired me to run for LZ spokesperson on a platform of: quality of life, mental health, preventing burnout, worklife balance, collegiality, inclusiveness.

Hybrid meetings are here to stay!

Hybrid meetings are here to stay!

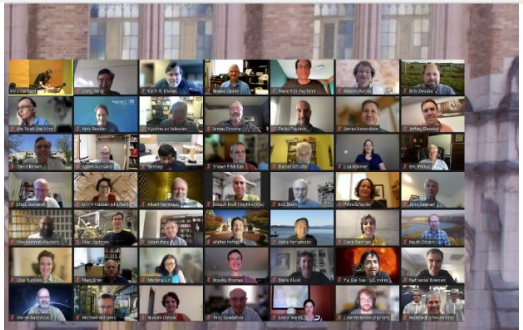
I have a recent hip injury and Hitoshi has covid. We both presented at this meeting. This was such a non-issue that I forgot to tell the organizers I was going to attend remotely.

Hybrid meetings are here to stay!



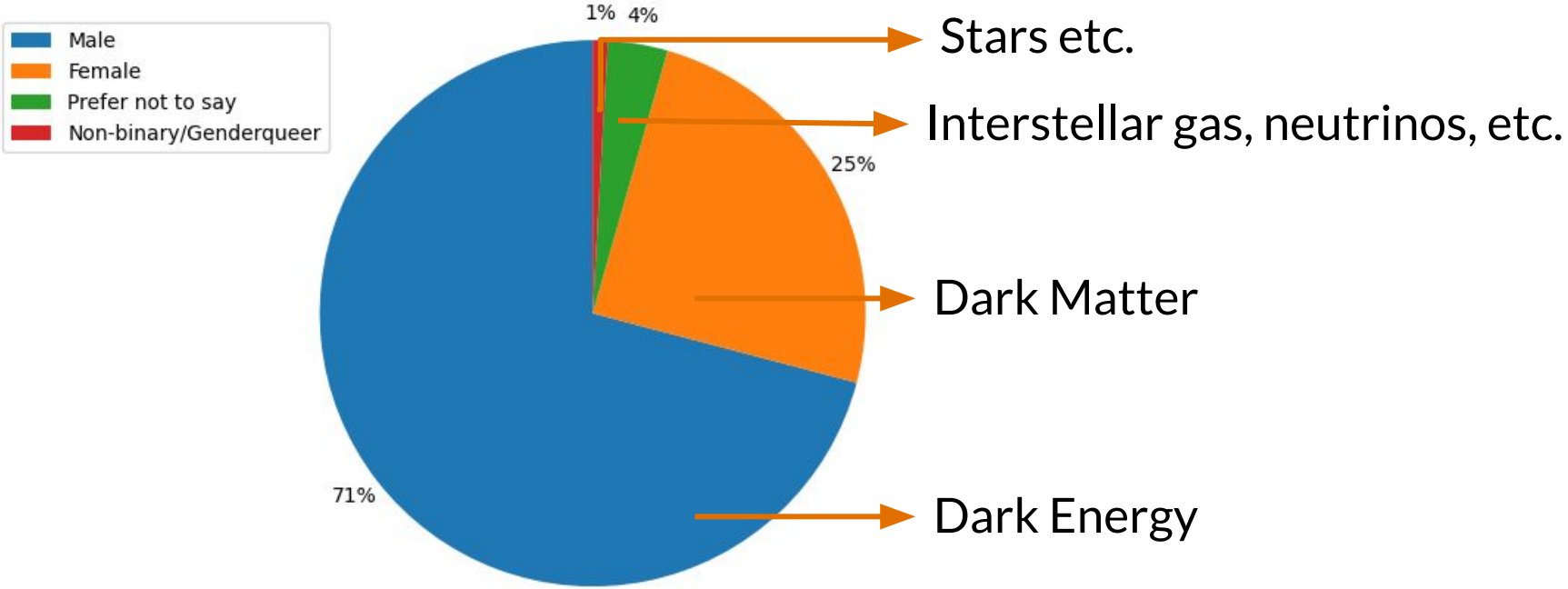
Help mitigate several issues:

- Physical accessibility
- Other types of illnesses
- Financial constraints
- Caregiving responsibilities

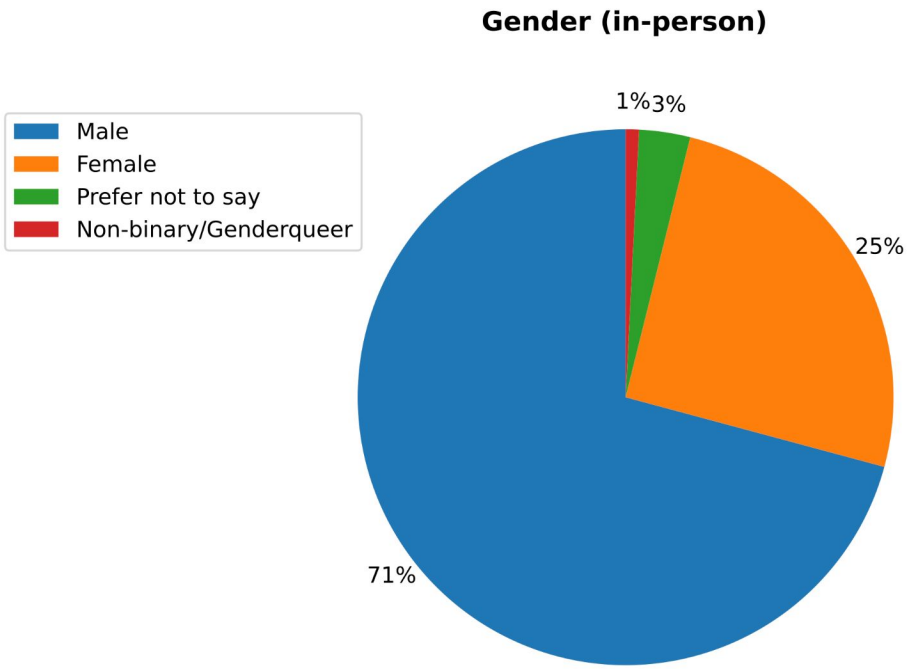


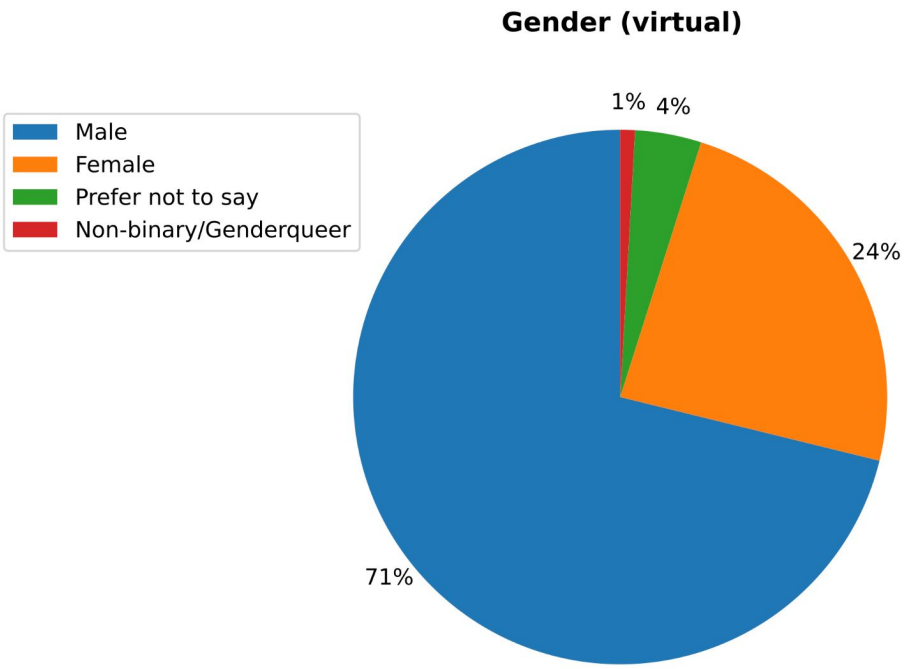
The Snowmass CSS as a literal microcosm

Great news! We can use the same pie chart for everything!



Gender breakdown: in-person vs. virtual attendees





Ok, but who did all this accessibility work?

- **Elise Novitski** (accessibility coordinator)
- Tien-Tien Yu (Diversity, Equity, Inclusion Team, Accessibility Resources)
- Gordon Watts and the Seattle LOC
- Honorable mention: Giordon Stark, MEM as “brainstorming resources” for the LOC

And who SHOULD do all this accessibility work?

There is no easy answer to this. We can't expect the disabled to do all the accessibility work themselves.

I would like to do my job, AKA find dark matter and play with the supercomputers. That being said:

- I experienced an incredible sense of community and belonging "working" with Elise & Giordon.
- From the whitepaper: "**Always defer to person in need when providing accommodations**"!
- We must improve accessibility without robbing the disability community of their agency, AND without making them do all the work.

Most importantly, how did you PAY for all this?!?

SLAC

- Thanks to the ADA, physical accessibility is not a cost driver (it does, however, require very advanced planning: site selection, meeting room/accommodation booking, working with campus facilities to fix things that may be broken, etc.)
- Live, “human”, captioning and ASL interpreters came out to 10-15% of the total budget (and before you ask, no, AI captioning doesn’t work well enough yet)
- Funding: a **dedicated** accessibility grant from the Heising-Simons Foundation; DOE conference funds (accessibility was included in our initial request); we unfortunately missed out on accessibility support from the NSF. Lesson learned:

Estimate accessibility costs ASAP and include them in your initial grant request!

- This is a general comment: accessibility cannot be an afterthought, it needs to be included from the very beginning of the planning process (again, site selection!)

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The rest of the funding came out of registration fees (note the sliding scale)!

In-Person Registration

Registration Type	Early Bird (Due June 17th)	Normal* (Due July 3rd)	Late*
Full	$550	$800	$1000
Early Career	$275	$400	$450

Accessibility is not rocket science… or is it?!?

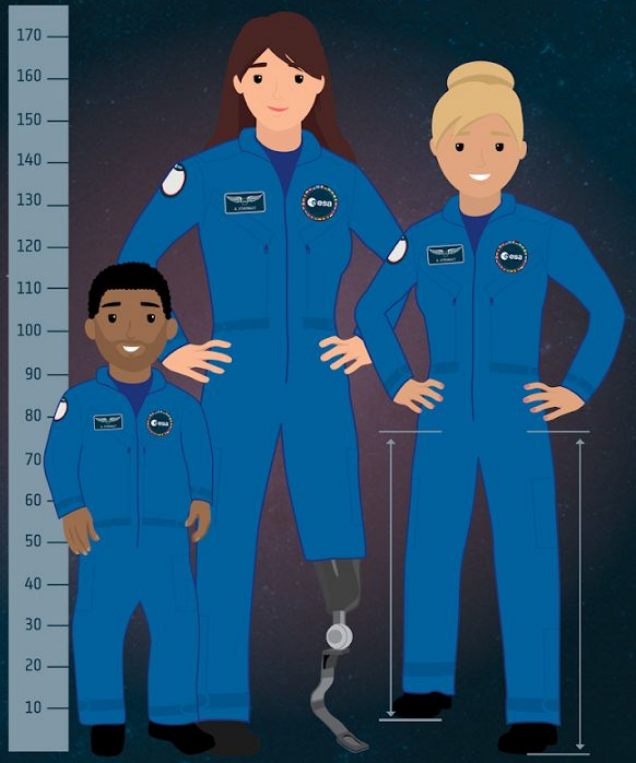
SLAC

esa

PARASTRONAUT PROJECT

As part of ESA's commitment to enhance inclusiveness and fair representation, the Agency is launching the parastronaut feasibility project to assess the conditions for including **astronauts with disabilities** to work in space. This project is a new endeavour for Europe and a global first.

The feasibility project aims at offering **professional spaceflight opportunities** to a wider pool of talents. Starting with selected disabilities to have a thorough understanding of the potential challenges in terms of safety and operations in space, the scope of disabilities may then be extended aiming at broader inclusion.



The selected candidate(s) will work with ESA to assess and optimise the conditions allowing people with physical disabilities to **work and live in space.**

The educational and psychological requirements for these candidates are the same as for the ESA astronaut selection. However, with respect to **physical requirements,** this feasibility project will allow the inclusion of candidates with the following disabilities:

- a lower limb deficiency, as follows:
  - Single or double foot deficiency through ankle
  - Single or double leg deficiency below the knee
- a pronounced leg length difference
- a short stature (<130 cm)

The 2022 ESA astronaut class, announced on Nov 23

On the topic of “International Benchmarking”

Your presenter in the Columbus training module at the European Astronaut Center (Cologne, DE)

- Yes, I was an ESA astronaut candidate for the past 2 years
- Several conversations with ESA leadership about “spacecraft modifications” for accessibility
- This is the kind of visionary initiative that our international partners are undertaking!

Backup

In case you were wondering about AI captioning

KR

Can AI captioning ever do better than human captioning?

It is possible for AI to perform better than humans at captioning in certain circumstances, such as when it is trained on a large amount of data and has access to powerful computing resources. However, it is important to note that AI is not capable of understanding the content of an image or video in the same way that a human would, and as a result, it may not always produce accurate or complete captions. In general, AI is best used as a tool to assist human captioners rather than as a replacement for them.

- Additional challenges in our field: people with accents and scientific jargon
- Research on AI vs human captioning presented in the accessibility whitepaper

Doesn't the ADA solve all accessibility issues?

SLAC

- *"Every event ends up being different, which is quite a challenge. Even domestic events, which nominally should conform to ADA requirements, sometimes do not have funds to support necessary accommodations [...]. International events are more consistent in being unable to provide accommodations."* (from a survey respondent, cited in the whitepaper)
- So, although the ADA is a great achievement for the US, **in our community it does not always come to bear in the way that one would hope it should.**
- Moreover, **there are many types of physical disabilities beyond those that involve the use of a wheelchair**. We must take into account the needs of those including, but not limited to:
  - People who are limited in their walking speed or distance
  - People for whom standing for long periods is not possible
  - People who, due to chronic pain, require different seating than standard furniture
  - People who have very short or very tall stature
  - People who are have upper-extremity disabilities, making it difficult to lift or carry objects

Doesn’t the ADA solve all accessibility issues?

- Imagine navigating the situation in this photo:
  - If you are in a wheelchair
  - If standing for too long is painful for you
  - If you are very short
  - If you have upper-extremity disabilities, making it difficult to lift or carry objects
- The whole event needs to be accessible, not “just” the presentation sessions. Social isolation is a major obstacle for all minority groups.