



UNIVERSITY OF
PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ



Vilnius
University



Impact, Inclusiveness and Outreach: Outputs from the MW-Gaia WG5 School

Dionysios Gakis
University of Patras

MW-Gaia Final Conference: The Milky Way revealed by Gaia
5-7 September 2023, Barcelona, Spain



THE SCHOOL

VENUE AND DATE

Venue: National Center for Physical Sciences and Technology (NFTMC), Vilnius, Lithuania

Date: 3-5 July 2023

Target audience: early-career researchers, students, senior scientists, leads of MW Gaia project

Format: hybrid

Funding: COST Action CA18104: MW-Gaia



THE SCHOOL PARTICIPANTS

Scientific Organizing Committee

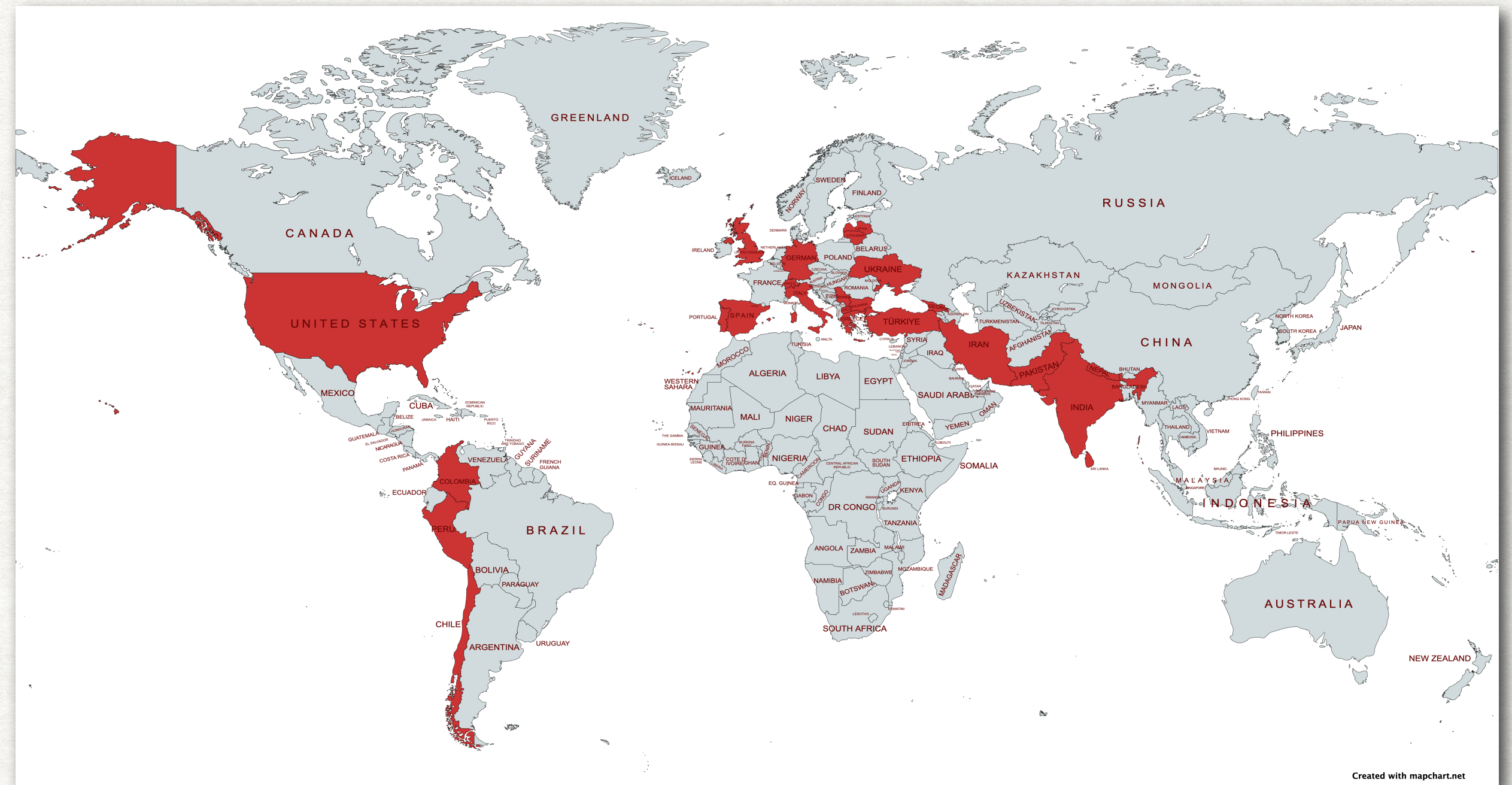
Carlos Viscasillas Vázquez, Vilnius University, Lithuania
Lola Balaguer University of Barcelona, Spain
Josefina F. Ling, University of de Santiago de Compostela, Spain
(CHAIR) Elsa Moreira, Institute of Astrophysics and Space Sciences, Portugal
Gražina Tautvaišienė, Vilnius University, Lithuania
Guillaume Guiglion, Max-Planck-Institut für Astronomie, Königstuhl 17, 69117 Heidelberg

Local Organizing Committee

(CHAIR) Šarūnas Mikolaitis, Vilnius University, Lithuania
Carlos Viscasillas Vázquez, Vilnius University, Lithuania
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Arnas Drazdauskas, Vilnius University, Lithuania
Gražina Tautvaišienė, Vilnius University, Lithuania
Justinas Lebedevas, Vilnius University, Lithuania
Markus Ambrosch, Vilnius University, Lithuania
Olga Rancova, Vilnius University, Lithuania
Renata Minkevičiūtė, Vilnius University, Lithuania
Yuriy Chorniy, Vilnius University, Lithuania
Barkha Bale, Vilnius University, Lithuania

Invited Speakers and Lecturers

Sara García Alonso, Researcher, Astronaut, ESA, Spain
Amelia Bayo, Professor, ESO, Germany
Josefina F. Ling Ling, Professor, Universidade Santiago de Compostela Observatorio Astronomico, Spain
Renata Minkevičiūtė, Researcher, Vilnius University, Lithuania
Enrique Pérez Montero, Researcher, Instituto de Astrofísica de Andalucía, Spain
Erika Pakštienė, Researcher, Vilnius University, Lithuania
Gražina Tautvaišienė, Professor, Vilnius University, Lithuania
Tanya Urruti, researcher, Leibniz-Institute for Astrophysics, Germany
Guillaume Guiglion, researcher, Max Planck Institute for Astronomy, Germany



THE SCHOOL PROGRAM

Day 1 - July 3	Day 2 - July 4	Day 3 - July 5
Registration and Welcome	Talk: Astroaccessible - Approaching blind people to the study of the Universe	Project: Create an inclusive activity to communicate Gaia data
Opening session	Talk: Practical skills and how to be inclusive	Presentation of group projects
Talk: Gender diversity in research	Project: Create an inclusive activity to communicate Gaia data	Excursion around the Old University Campus
Talk: Modern computing techniques in the Gaia era	Public Talk: Human spaceflights in the 21st century	
Talk: Training for application for observations	School dinner	
Opening of exhibition: AstronomAS		

GENDER EQUITY

- Barriers to women: stereotypes, inherent biases, maternity, limited permanent positions
- Leakage of women in academia
- In some countries (e.g. Germany) legislation for gender equity is adopted
- Possible solutions: support by community, implementation of family-friendly procedures (not a problem only for women)

QUOTAS

- Necessary in the beginning so that opinions change
- At least 30% is needed to achieve that
- Quotas should eventually become unnecessary and disappear

CAREER LEVEL DIVERSITY

- Young/new people bring new ideas
- Formalization of procedures while keeping an open atmosphere
- Constant contact between leadership and junior scientists
- Juniors must come first, e.g. at conferences

INCLUSIVENESS OF PEOPLE WITH DISABILITIES

THE EXAMPLE OF VISUALLY IMPAIRED PEOPLE

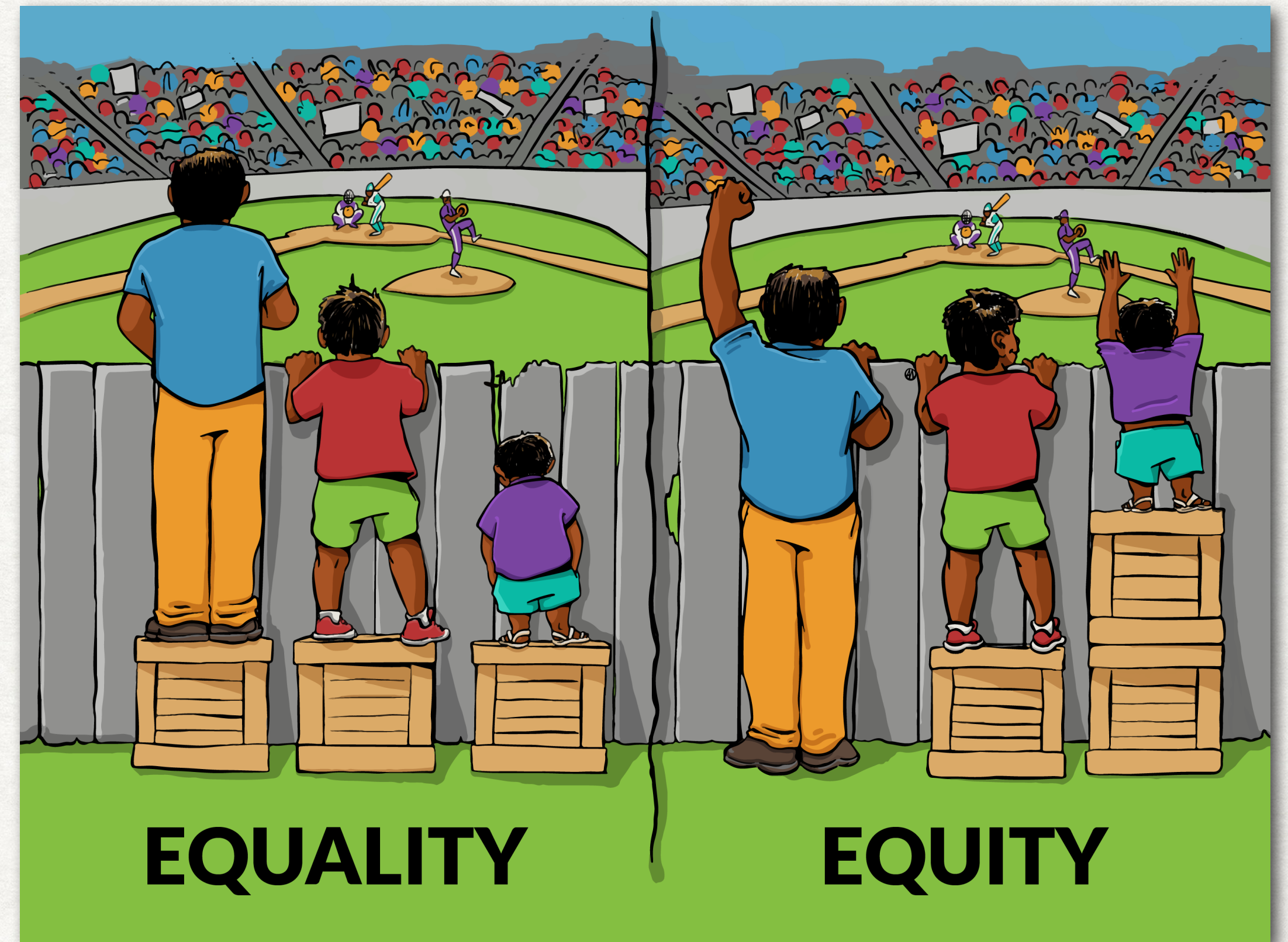
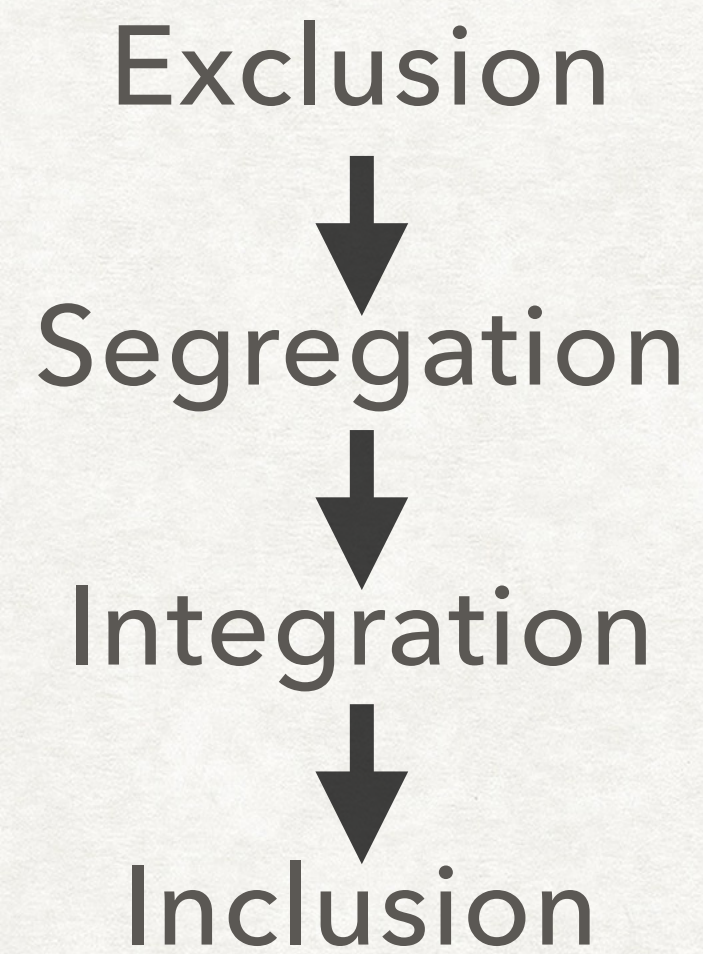
- Utilize other senses to approach them, people love to hear and touch
- Ears comprehend higher resolution than eyes, translate information into sound (requires previous training, context is crucial)
- Explain images with words, languages could be a barrier
- Surface touching: non-homogeneity, size, material can reveal information
- Eyes are not a good instrument to understand the universe

INCLUSIVE OUTREACH

- Working on outreach does not imply a not good scientist
- Proper education is needed to approach minorities
- Low-cost material might suffice, think about applicability, everyday life examples are very effective
- Approachability: explain things in a simple way, the purpose is to share knowledge, not sound smart
- Resources are required; outreach should be paid

PATH TO INCLUSION

- Even if all people are treated equally, it is not the same for all
- 4 steps:



SCHOOL PROJECTS

1/2

- **Supernovae distances**

Luminosity and distance sonification

- **Asteroids**

Funding proposal to Europlanet Society (Ukraine war)

- **Spatial distribution of elements in the Milky Way**

Interactive poster at EAS (hear two spectra simultaneously)

SCHOOL PROJECTS

2/2

- **Gaia data**

Search for red giants with exoplanets

- **Galaxy clusters**

SZE effect, sketch with sounds representing change in wavelengths

- **t-SNE Algorithm**

Group stellar spectra according to metallicity, temperature and surface gravity

CONCLUSIONS

- Inclusiveness is not limited to gender
- Great ideas are developed in groups with diversity in backgrounds (many examples in the history of science)
- Inclusiveness even helpful for ourselves
- Inclusiveness doesn't mean targeting a minority only, but contact is key
- Equity work may proceed slowly ('marathon, not race') - careful planning is required, setbacks and mistakes are part of the process

ACKNOWLEDGMENTS

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- WG5 School participants
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