

# Addressing the Social Limitations in Open Science

**Gabriel Gonzalez** Co Organizer  
University of Mainz  
Mainz, NA  
Germany

**Aki Nikolaidis, PhD** Organizer  
Child Mind Institute  
Child Mind Institute  
New York, NY  
United States

## Symposium

The development of an impressive array of open science tools, and an impassioned surrounding community, have improved many of the science practices in the OHBM community and beyond. Nevertheless, there are significant social and cultural challenges that perhaps offer the greatest impediment to open science, and which we would like to highlight here. In this symposium, the Open Science SIG examines the successes of open science in the light of the social challenges that open science faces in driving changes in scientific practice. Our chosen format focuses on three main topics: Successes in Open Science; Addressing Inclusivity in Open Science, and Sociocultural Challenges in Open Science, followed by a twenty minute panel discussion that will include additional commentators from Black In Neuro and Queer in Neuro to discuss topics raised in the three talks.

## Objective

- Develop a deeper understanding of key developments in scientific reform and open science.
- Gain an appreciation for the issues of inclusivity facing the scientific community
- Learn about the sociocultural challenges that are preventing open science practices from becoming more common.

## Target Audience

All OHBM attendees, from early career researchers to tenured and emeritus professors, will benefit from the talks and resulting panel discussions in this symposium. We believe researchers particularly interested in scientific reform and open science will benefit from this symposium, but we think all OHBM members stand to learn from the discussions herein.

# Presentations

## Successes in Open Science

As the open science movement has had a significant impact on the scientific landscape, we would like to take the chance to celebrate and reflect on some of its great successes. There are several milestones in this process of making science better: open science in the publication process, with more and more journals pushing for open data and code, and preprints having become a common format of sharing results; the use of code for better reproducibility, with code and containerization becoming more ubiquitous even in originally non-tech-heavy fields of science; open science events, where Brainhacks have reached record attendee numbers and global scope. This talk will be the chance to take a step back and look at what is next for these efforts.

### Presenter

**Katie Bottenhorn**, Florida International University Miami, FL, United States

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## Addressing Inclusivity in Open Science

The goals of open science are, broadly, to democratize access and to promote good research practices. Unfortunately, these goals fall short in several key ways, at the center of which are equity, diversity, and inclusivity (EDI) not only of the community, but of the fruits of their labors. Historically, the open science movement has been dominated by a narrow demographic with the access and support (institutional and otherwise) to time and resources they can spend on “open science” efforts. This monolithic culture has been furthered by (1) a gravitation of open science efforts on technical solutions and valuation of technical skills and (2) a reliance on computational resources that are inaccessible to a large proportion of the globe. While the community has become more diverse in the past few years, there is still a long way to go and the products of open science remain sequestered in the global North. Furthermore, EDI disparities have been highlighted by continuing socio-economic issues, recent increases in related scholarship, and the COVID-19 pandemic, revealing that our science isn't as open as it should be. From culture to reachability, accessibility, there remains a lot of room for improvement. Failure in achieving EDI goals, not only hinders science, but imposes clear limitations and biases in the voices around us and the knowledge we produce. Science benefits from diversity in perspectives, experiences, and beliefs, in addition to accessible tools and reproducible research practices. New ways of thinking, understanding and learning are needed, new ways of establishing inclusion as a culture is needed to encourage and include historically underrepresented people, without such practices open science would not be as open as it should be.

### Presenter

**Melvin Selim Atay**, Middle East Technical University Ankara, Turkey

## Sociocultural Challenges in Open Science

Over the last two decades, the open science community and open science practises have been able to successfully change the research landscape for the better. However, before open science practises can become mainstream and part of the majority of scientific endeavours there remain several non-technical stumbling blocks. For example, governmental and private grant funding agencies are more excited by and committed to funding 'new-science' rather than research into fundamental issues of reproducibility such as test retest reliability, cross site harmonization and well as replicability of previous observations. Second, tenure committees often don't consider weighing open science practices when considering a candidate's research quality, potentially overseeing early career researchers who are fundamental to changing scientific culture. We discuss how to overcome these challenges and underscore the value and power of open science practices, not only for specific studies, but also for research outcomes and community building within a department/university.

### Presenter

**Aki Nikolaidis, PhD**, Child Mind Institute, New York, NY United States