

Talk on Tuesday, 12. May 2026

Start: 9:00 till 10.15 Uhr

in Multiseminarraum

The talk will be presented in English

Towards better science: Large-team collaborations, open-science, and meta-research for boosting research and impact

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Replicability, transparency, and credibility are at heart of science, yet recent years have made it increasingly clear that there are many challenges to doing good science and meeting these basic standards, and that we need to work together to scientifically check and improve our methods and processes, to try and do better. This led to a broad "science reform" movement, calling for changes in how we conduct, evaluate, and share research. Open-science practices such as pre-registration, Registered Reports, and reproducible open materials, data, and code are a start, yet

they are not enough - there is a long road ahead.

In this talk I will share my own journey and my work with a large team of students and early career researchers in trying to assess science and push science forward. I will briefly cover our experience over the last several years running large-team student-led replications and extensions, with over 150 classic findings revisited and over 30 submissions to Peer Community in Registered Reports. I will then turn to "meta-science" — a scientific process of evaluating and improving science. I will briefly introduce what meta-science is, main issues and themes, why it matters, and some of my meta-science projects.

I will also share an emerging promising direction: the ability to conduct automated large-scale meta-science projects and build high-quality, accurate, AI-assisted tools and open platforms. In the past few months I have built several tools as a proof of concept — tools that audit citations, effect sizes, statistics, and the reproducibility of shared data and code; reproducibility helpers that convert between statistical packages and reporting formats; and open alternatives to costly commercial research infrastructure that scientists rely on but often cannot afford, audit, or properly evaluate. These are experimental, and meant to show what is now possible. If I can build and validate these on my own, then as a community we can go much further. I will share what I have learned about what is now feasible, what has shifted because of the rise in AI capabilities, and where I think the next steps lie in using these capabilities responsibly and cautiously to address science's challenges.