Preface

The theme of the 2019 Physics Education Research (PER) Conference was Physics Outside of the Classroom: Teaching, Learning, and Cultural Engagement in Informal Physics Environments.

The plenary talks highlighted this theme in several ways. Paula K. Hooper’s talk entitled *Making through a lens of culture, power, & equity: Visions for Learning and Teaching in Informal Settings* focused on factors and ways that educators can think about where equity and science ideas are intertwined.

Shane Bergin led an interactive session demonstrating a collective experience of running, or participating in, informal physics programs. Shane also addressed the scholarship from this emerging sub-discipline.

Jamie Bell provided an overview of what is sometimes called an "invisible infrastructure" of support for informal STEM learning and communication, and invited attendees to share their own discoveries and what's in their toolboxes.

In 2019, PERC continued the breakout "Dine and Discuss" groups started in 2018. Among these groups of a variety of topics, the PERC Proceeding editors hosted a session inviting attendees to meet the editors. Steven Wolf, editor of 2019 proceedings, led the dinner discussion and addressed questions attendees asked. Juried talk papers continued in the main peer-reviewed section of the Proceedings, also a transition that happened in 2018.

PERC often ends with a plenary session or panel, and in PERC 2018 it closed with parallel discussions run by a panel of plenary speakers. This year, Mike Bennett, one of the organizers as well as a Proceedings editor, ran a relaxed, discussion-based closing session inviting attendees to reflect on their conference experiences, including the conference’s interactive community engagement piece, and to discuss how the PERC 2019 themes and content might impact their own practice moving forward.

This year, the Physics Education Research Leadership and Organizing Council (PERLOC) was involved, working with the editors to improve the process of paper reviewing.

None of this could happen without a team of people every year who bring their vision, energy, and sweat. The 2019 PERC organizers were Mike Bennett, Jackie Chini, Claudia Fracchiolla, Danielle Harlow, Katie Hinko, and Katemari Rosa. They were joined by the formidable organizational powers of the American Association of Physics Teachers (AAPT).
The PERC Proceedings online submission and review process was supported by Lyle Barbato and Bruce Mason who work closely with the editors to ensure smooth functioning of the online system. We owe Lyle and Bruce a great deal of thanks.

The editors also thank the AAPT for their sponsorship of the Proceedings, allowing it to be published open-access through the comPADRE website.

As in every year, the editors wish to thank the referees for volunteering their time and expertise to give feedback to papers submitted to the Proceedings. This year we had 212 reviewers who reviewed the 151 papers submitted to the Peer Reviewed Section. The PERC Proceedings is both an important archive of findings and also a place where many new members of the field publish their first physics education research, and we are deeply appreciative of the reviewers who make this possible.


Finally, the Editors wish to express our special thanks to the PERC Coordination Committee chaired by Erin Scanlon, who facilitated communications and coordinated logistics among multiple parties to streamline the process for future years.

See you Summer 2020 in Grand Rapids, Michigan!

Ying Cao
Editor-in-Chief