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Organize a Laid-Back Conference in the Rocky Mountains that Participants Want to Return to Year after Year

Danny Krashen and Kelly McKinnie

We are at a difficult moment presently as a community, where many aspects of our professional life are rapidly changing due to the global pandemic. In particular, the structure of conferences and seminars has been in a state of flux, as new models are being explored and in-person meetings are being canceled.

In this context, it may be useful to take a step back and try and assess our community goals. Why is it that we organize and attend conferences? What do we hope to get out of them, and what compels us to organize them? Who typically benefits most from them? When the world returns to a place where we can once again organize in-person conferences, what will we have learned? What differences should we see in future conferences?

In fact, there is probably a diverse set of valid answers to these questions. It is not our intention here to weigh the pros and cons of various choices, but rather to explore one particular set of choices, which the authors' small community has made, as the larger mathematical community moves in a new direction for conference organization.

The original conception of the "Brauer group" meetings was simple: to establish a community of mathematicians, loosely interested in the same math, who enjoy spending time together in the mountains. Implicit in this organization though was the idea that spending unstructured time together, appreciating the Rocky Mountains, would be a great way to form long-lasting professional and personal connections. In addition, the accepting and generous behavior of senior participants at the beginnings of these meetings had a huge role in setting the tone for norms and expectations of behavior for years to come. Together, these were very effective in building a cohesive and supportive professional community of researchers.

In this article, we'll first talk a bit about the organic beginnings of the Brauer group meetings, and its particular features which we have found helpful in shaping our community. We'll then say a bit about how we've used these ideas at other related conferences, and end with some thoughts about the future.

Figure 1.

Folklore has it that the Brauer group meetings began over 30 years ago when David Saltman and Darrell Haile, both algebraists who liked to hike, met up with Frank DeMeyer at Colorado State University. They drove up a mountain to start a hike and came upon the Mountain Branch Campus. This is and was a primitive "campus" designed to house and feed forestry students from CSU. It has some dorm and private room accommodations, a lovely old classroom building with a tiny chalkboard and a cozy fireplace with beautiful views of the mountain valley from the deck. One of the group said something to the effect of "We should host a conference here so we can hike a lot," and voila, the Brauer group meetings were born.

We, the authors, first started attending the conferences around 2000, about 10 years after their beginnings. At this time, both of us were students of David Saltman, and attending them was a highlight of our graduate school years. Since around 2008, we have been a part of the organizing committee for this conference. It has been held about every two to three years over the past 30 years with a few meetings

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taking place outside of Colorado; once in Montana, a few times in Israel.

The original meetings had zero funding for conference participants, and even into the 2000's almost zero internet connection (there has always been a single payphone on campus). Also, the mountain campus is a serious three-hour drive from Denver including 17 miles on a dirt road and we've never heard anyone boast about the food. Altogether not the easiest place to organize a conference. However, over the years only one of these things has changed and yet the conference has had a staying power and so, we think/hope, that it goes into the category of "good ideas."

Tradition has it that the list of speakers is organized the Sunday evening before the conference begins on Monday. We try to have at least the first couple of days planned on Sunday and then repeat the exercise again later as needed. We do not ask specific speakers to give a talk at the conference beforehand, though those who come are alerted to the organizational strategy and come prepared to give a talk if they want to. We try to be aware of the different pressures this may put on the participants; those who want to speak but feel shy to speak up, those who are hoping all the spots fill so they don't feel pressure to "volunteer," those who are young and could really use another conference talk on their CV's. Many times the authors have appreciated eminent mathematicians laying low until the week's schedule is nearly complete and everyone has had a chance to volunteer before they (sometimes reluctantly) agree to give a talk.

What impact does a loose organizational structure like this have on younger participants? Is having an unknown conference schedule more stressful than knowing in advance if and when you will speak? The answer must vary among participants, but to us the relaxed nature of the conference is worth the unknown talk schedule. Another thing to note is that even though the meeting is the "Brauer group" meeting, all talks need not be about or even mention the Brauer group. When we advertise for conference participants, we emphasize that it is all things related to the Brauer group. Broadening the focus of the meeting has the effect of welcoming more participants interested in joining our community. This includes quadratic forms, many areas of algebraic geometry and number theory, associative and non-associative rings and algebras. As some of our core group has diversified their mathematical interests, yet still come to the Brauer group meetings, we've had talks as wide-ranging as mathematical biology and boolean algebras. This reflects how the meetings facilitate connections and a sense of shared community which outlive particular problems or even research interests.

Also, talks are welcome that are more of a working seminar flavor. As in, "this is what I've been thinking about. It's not in a polished form yet." This brings us to the point of this conference; supporting a community of mathematicians who enjoy spending time together in the mountains, with overlapping interests. Have we mentioned that the food is not worth writing home about? Well, the hiking is! In fact, we schedule the conference so that the first talk of the day happens after lunch. This schedule allows for hiking and mathematics in the morning while the weather is nicest and then, as there are often afternoon thunder showers, talks in the afternoon and evening. Getting to know other mathematicians during a shared activity, like hiking or going for a stroll around the valley, is a great way to build the community of mathematicians around you.

Of course, the environment of Pingree Park is unique in part because of its relative isolation. Even today there is little working internet, no cell service, and a single payphone. In such an environment, participants will naturally spend a substantial portion of their unstructured time interacting with each other, and forming connections. This is a bit trickier in environments which are more permeable to outside distractions, perhaps the most formidable of which would be those which occur working from home together with one's family during the present pandemic. In such situations, it can be very difficult to take a substantial number of hours from each day over the course of a week to have unstructured time with ones colleagues. Instead, some have opted to take smaller periods of time, of five to 30 minutes in Zoom breakout rooms in order to provide some degree of social interaction and community building.

When it becomes time to once again freely choose a location for conferences, there are of course a wide range of wonderful national and international conference centers in mathematics, all of which host amazing and easy to organize conferences (MSRI, AIM, ICERM, Banff, Oaxaca, Oberwolfach). On the other hand, one doesn't need to feel restricted to these kinds of choices. Why should you consider going off the beaten path? Perhaps it is so that you can design your own type of conference and tailor it to the interests of your participants.

There are various practical details involved in conference organization. An essential starting point is getting the organizing committee together. It is important to think about the diversity of organizers and participants you want to attend right from the beginning. Funding is another consideration, and is the one real change which has happened in our Brauer group meetings. In the beginning, the conference had absolutely no funding support, but had the nice advantage of being relatively inexpensive, so many participants brought their families with them. Over the past 10 years we have been successful in getting funds from NSF, NSA, and our universities to pay for travel and housing for the mathematically youngest participants and ask those with their own grants to cover their own costs. Finally, there are the organizational aspects of organizing: sending emails, solidifying participant lists, reserving the conference site, making a website, giving directions, etc., which takes quite a bit of time and effort.

In conclusion, besides the more readily apparent mathematical aspects of organizing a conference, there can be a big benefit in terms of mathematical community building. Indeed, future mathematicians may travel less for mathematics, moving some or much of that travel to online sessions. We hope that the travel they do make and the burgeoning online meetings have the benefit of combining mathematics and pleasurable activities done with a good community and support budding mathematical friendships.


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Credits

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How to Transition a Summer Math Camp to a Virtual Experience

Gabrielle Cottraux and Lindsay Augustyn

When Nebraska mathematics professors Wendy Hines and Judy Walker launched All Girls / All Math in 1997, they sought to develop a program that provided girls with the opportunities in mathematics that they had lacked in their educations. They understood that without visible representations of women in the mathematics field or a strong network of female support, many girls will be dissuaded from pursuing their interest in the STEM fields (science, technology, engineering, and mathematics). After researching this phenomenon, Hines and Walker uncovered an abundance of literature that corroborated what they personally knew to be true: girls thrive in mathematics when given a supportive, female-driven environment to learn.

In its 23 years of operation, the All Girls / All Math Summer Camp for high school students has become an increasingly selective program that annually accepts between 25 to 30 participants per weekly camp, based on funding availability. Traditionally held on the University of Nebraska-Lincoln campus, the camp attracts students from across the United States and around the world. Due to the restrictions placed on group gatherings because of COVID-19, All Girls / All Math switched to an online format for the summer of 2020.

Structure of an In-Person Summer Camp

Before COVID-19 entered the scene, All Girls / All Math was structured as a seven-day residential camp at the University of Nebraska-Lincoln (UNL), where 25 to 30 girls were divided into two groups and taught by women who have received their doctorates in mathematics from UNL. The participants worked closely with their groups throughout the week, going to class and activities together while being chaperoned by female graduate teaching assistants and an undergraduate coordinator.

The campers attended a course on cryptography and number theory, working their way up to RSA as the week progressed; the course met three hours a day for five days, and the girls were given homework each night to solidify their understanding of the new material.

During the second half of their day, the campers participated in an additional mini-course. These self-contained three-hour classes, offered daily in varying topics, allowed the students to explore a wider range of mathematics. The program employed women guest speakers and a career panel that allowed the girls to ask questions and learn more about what they can do with a degree in mathematics.

During the late afternoons and evenings, the participants also took part in team-building activities and tours of different parts of the campus to build lasting friendships and a solid foundation for a network of budding female mathematicians.

The Switch to Online

Though the recent switch to remote learning due to COVID-19 affected various elements of the All Girls / All Math programming, the camp was conducted this summer online on Zoom, from July 12–18. The 25 campers were given the choice to defer to 2021 or participate for free online in 2020. Fifteen campers elected to attend the camp virtually, including one participant from Brazil.

While we were able to offer the camp free to participants, the cost of putting on the workshop was certainly not free.

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