The Early Career Section offers information and suggestions for graduate students, job seekers, early career academics of all types, and those who mentor them. Angela Gibney serves as the editor of this section. Next month’s theme will be Working With Students.

Going Online
A Guide to Organizing a Virtual Conference

Jarod Alper, Daniel Litt, and Isabel Vogt

The authors—Jarod Alper, Daniel Litt, and Isabel Vogt—organized the large virtual conference WAGON1 (Western Algebraic Geometry ONline) during the weekend of April 18–19, 2020. WAGON was a virtual version of the biannual regional conference WAGS (Western Algebraic Geometry Symposium), which has been running regularly since 2002 and whose origins date back to 1989. The spring 2020 WAGS was originally planned to be hosted at Pomona College but was postponed due to COVID-19. In this article, we provide a recap of WAGON as well as a guide for other virtual conference organizers.

1. WAGON Recap
1.1. Format
WAGON consisted of two 1-hour plenary lectures, six 20-minute lectures, two panels, and various social events. The lectures and panels were hosted on a Zoom Webinar 1000 license, generously provided at no cost by Stanford. The social events were hosted on participants’ Zoom accounts and will be described in more detail below. The conference required zero funding and was free to attend. Recordings of the lectures and one of the panels were made available online afterward.

Figure 1. Opening lecture by János Kollár.

1.2. Participation
WAGON had over 1,000 registered participants, with a large international representation (as some indication, the conference website was visited from 63 countries during the weekend). Every event had hundreds of attendees; for the opening lecture by János Kollár at 9 am (PDT) Saturday morning, 725 people logged on through Zoom. In comparison, the normal WAGS events draw 100–120 participants, and the conference AMS Summer Institute in

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https://math.washington.edu/~jarod/wagon.html

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Overall, the social events were very well received, and it was striking to witness how much people enjoyed seeing each other and reconnecting. Several junior participants reached out to say that the social events were their favorite part of the conference. It was particularly helpful to have speakers host tables after their talks, because it afforded a great opportunity to ask questions.

1.5. Organization

We organized WAGON quite quickly: the conference was put together in three to four weeks. Organizing WAGON was substantially different from organizing a regular conference. It required much less upfront work (e.g., flight and hotel reservations). Speakers were quicker and more likely to accept invitations. That said, there were some additional organizational burdens, for example, the new necessity of technology dry runs with each speaker before the conference. And WAGON required substantially more work during the conference itself—operating Zoom, controlling recording, controlling spotlight video, monitoring chat, monitoring Q&A, and looking for hands raised. In all, it required a greater degree of multitasking during the event, and the organizers could not sit back and enjoy the conference like attendees.

2. A Guide for Organizing Your Own Virtual Conference

2.1. Format

Think carefully about the number and the length of lectures. Anecdotally, many people seem to find virtual talks more exhausting than in-person talks, so it is worth considering fewer or shorter talks than might be appropriate for an in-person conference. Consider also how accessible your schedule is to participants with outside commitments. With travel out of the picture, for example, the conference can more easily be held during the workweek.

Consult with all of the speakers in advance about how they will deliver their virtual lecture, and schedule a brief practice session. If they are using slides, we recommend asking speakers to provide them in advance of the talk, as it is extremely effective for participants to be able to look back to catch definitions and terminology.

2.2. Diversity and Inclusion

As with an in-person conference, be conscious to choose a diverse set of speakers including from underrepresented groups. Keep in mind that the digital format means that you may be able to find virtual talks more exhausting than in-person talks, so it is worth considering fewer or shorter talks than might be appropriate for an in-person conference. Consider also how accessible your schedule is to participants with outside commitments. With travel out of the picture, for example, the conference can more easily be held during the workweek.

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2.3. Audience Interaction

At WAGON, there were several ways for participants to ask questions:
Consider using an external chat client (e.g., Discord or Slack), as Zoom’s chat window is very low-featured.

We recommend having several conference organizers due to the live multitasking required during the event. We also recommend that organizers create a private chat channel to communicate quickly during the conference, which ideally can be accessed on either a computer or a phone.

2.4. Technology and Data

There are various virtual platforms available commercially, including Zoom, Blue Jeans, and Google Meet, which may be provided through your university. If you choose a commercial option, be attentive to how the software hosting the conference handles the data. For instance, Zoom webinars record detailed information about the exact times every participant attends, while Zoom meetings do not. We recommend that the data not be viewed or shared even by the organizers. While some open-access alternatives exist, they do not currently rival the functionality and prevalence of, say, Zoom. As other hosting products become available, we recommend considering their data policies in your decision.

We recommend that you carefully configure the hosting software’s security settings and, in particular, disable screen sharing for participants. Several online mathematical events have already been interrupted by “Zoombombers.” We found that requiring advanced registration was enough to deter them, however.

2.5. Social Events

Consider beforehand whether you want to include social events. The format of the social events may depend on the number of participants; for example, a small event could use Zoom’s “breakout rooms” feature.

At WAGON each social event had 6–8 tables, each with 5–25 participants. We had also hoped as some tables got crowded that additional tables could be created dynamically by participants to meet the demands and interests of our diverse audience. While this did work somewhat effectively, we encountered the unexpected technical issue that Google prevents more than 100 people from simultaneously editing a Google Doc. And some junior participants were intimidated to join a table full of either strangers or senior researchers—it’s worth considering how to make one’s social events as welcoming as possible.

We view our experience as only a first attempt at simulating the social component of conferences. There are clearly better ways to structure such events. We would like a platform where users join a virtual event space, see a list of people currently there, and can organically chat with others and form groups. Surely math conference organizers are not the only ones in need of such a product, and there are hopefully people building it right now.

2.6. Recordings

If speakers are open to it, we strongly encourage recording talks and other events. This increases the accessibility of the...
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Due to the COVID-19 pandemic, in early 2020 it became necessary to run a research seminar online if one wanted to run a seminar at all. Out of necessity, mathematicians will be gaining more experience with communicating online. Though some benefits of online seminars are clear during a time of social distancing, we emphasize that other benefits are lessened: accessibility of an online seminar is not shared equally during a global pandemic, perhaps not by those in a caretaking role, not by those taking on additional jobs, not by those volunteering to serve, and not by those without consistent access to the internet.

This article is divided into three sections: my tips for running an online research seminar, a description of the Applied Algebraic Topology Research Network (AATRN) seminar that Sara Kalisnik and I codirect, and links to other online seminars and resources.

1. How Does One Run an Online Research Seminar?

Here are my tips for running an online research seminar.

- **Host an interactive seminar that audience members can join live.** Many audience members prefer to watch a live talk in which they can unmute themselves and interrupt the speaker with a question. Those without a microphone can also type questions into a chat window; it is your job as the moderator to ask these questions aloud to the speaker (who may not otherwise see them).

- **Post recorded seminar videos publicly.** If the speaker gives you permission, it is a good idea to record the talk and post it online. Every platform for hosting videos has its own pros and cons, but two advantages of YouTube are:
  - providing the option to record the lectures on either the cloud or your local computer.

2.7. Reflections on the Future

We hope that this document can provide a starting point for a community-wide discussion of best practices in online conferences. While we are certain that online events can (and will) never replace in-person meetings, we also hope that the lessons learned here will be useful post-COVID. The real benefits of the online format should not be overlooked—especially its ability to include those who might otherwise not be able to attend in-person conferences. The fight against climate change may require some proportion of conferences going forward to be held virtually. One takeaway from WAGON was the real need in the mathematical community to actively participate in virtual conferences now, even if they are an imperfect substitute for in-person conferences.

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