Using ZOOM-events for Scientific Conferences: the ICHEP 2022 Experience

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Abstract. The organization of seminars and conferences was strongly influenced by the covid-19 pandemic. In the early period of the pandemic, many events were canceled or held completely online, using video conferencing tools such as ZOOM or MS Teams or Google Meet. Later, thanks to large-scale vaccination and immunization, it was possible to organize again large events in person. Nevertheless it was still necessary to provide online modalities for participants who could not participate in person, having in fact hybrid events with both remote and in person participation. However, in 2022, the global pandemic situation was patchy, with many countries still affected by travel restrictions, making it necessary to provide online modalities for participants who could not participate in-person, having in fact hybrid events with both remote and in-person participation. In this contribution we describe the experience with the ZOOM-Events platform, used for the ICHEP 2022 International Conference on High Energy Physics, held in Bologna in July 2022, with about 1100 participants in-person and 300 connected remotely. We describe in detail how the ZOOM-Events platform was configured for the management of the numerous parallel sessions and the granting of access to participants and how we dealt with the problems that emerged in the organizational phases.

1 Introduction

The year 2020 was a significant moment in the history of humanity, as the world encountered an unprecedented challenge in the form of the global covid-19 pandemic. The novel coronavirus emerged in late 2019 and proved to be highly contagious and deadly. To prevent the collapse of health systems and protect the most vulnerable, many governments implemented drastic measures like lockdowns, curfews, social distancing to keep people isolated as much as possible. These measures had a profound impact on the social and economic life of billions of people, as well as on the scientific and academic activities. Thanks to the rapid development and distribution of effective vaccines, mass vaccination campaigns started in many countries to achieve herd immunity and stop the transmission of the virus. However, new variants of the virus emerged, some of which were more transmissible, virulent, or resistant to existing vaccines, leading to several waves of infections. Some countries had

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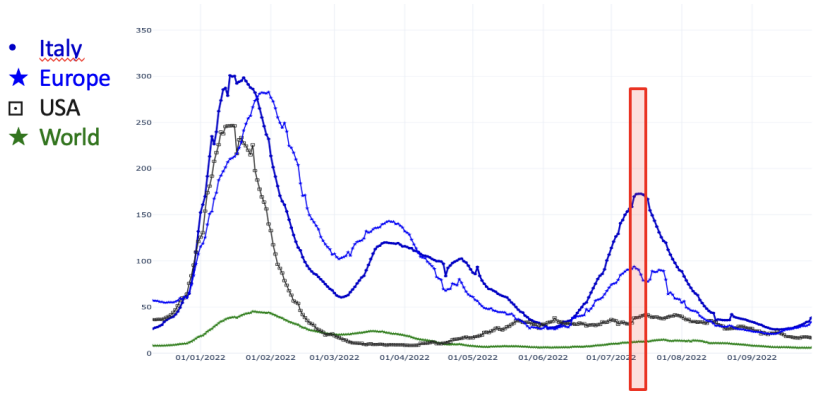

Figure 1. Number of daily cases/100k inhabitants (7-days average) in Italy, Europe, USA, World as a function of time.

to reimpose or extend restrictive measures as a result. Conferences and conventions, which are essential for the exchange of knowledge and ideas among researchers and professionals, were also affected by the pandemic, due to the travel limitations. Communities decided to use videoconferencing tools such as Zoom, Google Meet, MS Teams, and others to communicate and collaborate remotely.

In 2022, thanks to mass vaccination and the high number of infections due to less aggressive variants, we gradually returned to a normal situation. However, in the transition phase, many countries still had isolation and quarantine rules for infected people. Regulations varied from country to country, making it difficult to plan international travel. During this period, many conferences and conventions were organized in a mixed mode, with guests in attendance and guests connected remotely. This hybrid format offered more flexibility and inclusivity for participants, who could choose the mode of participation that suited them best according to their preferences, availability, health conditions, and financially accessibility for students and early-career scientists. . Organizations continued to take advantage of online conference platforms, but they also had to face new challenges in managing the dual participation mode where users could switch between online and offline modes even at short notice due to health conditions or any limitations imposed by local or national authorities.

This article describes the case of the ICHEP 2022 conference, the International Conference on High Energy Physics [1], held in Bologna, Italy, in-person and online in a blendend format, using the ZOOM-events [2] platform for online connection, broadcasting, and video recording. We will discuss how the conference organizers planned and implemented the blended mode of participation using the ZOOM-events platform, which is a service provided by Zoom that allows the hosting of large-scale online events with multiple sessions and features.

2 The ICHEP 2022 conference

ICHEP is among the most important conferences in the field of particle physics, attracting hundreds of researchers from all over the world every two years. The conference covers a wide range of topics related to high energy physics, such as experimental results from accelerators and detectors, theoretical developments and models, cosmology and astroparticle

physics. The conference also features plenary sessions with invited speakers and parallel sessions with oral presentations.

The ICHEP 2022 edition, held in the Fiera District of Bologna (Italy) from 7^{th} to 13^{th} July 2022, attracted 1469 participants from different countries, with 78% attending in person and 22% joining online [3]. The online participants were mostly from China, United States, Russia, Canada and Brazil. As shown in Fig. 1, the conference coincided with a surge of covid-19 infections in Italy and Europe [4], caused by less aggressive variants of the virus that resulted in few hospitalizations and deaths. However, this also meant that some participants had to switch to online mode at the last minute, due to travel restrictions or quarantine measures imposed by their countries or because they contracted covid-19 and showed symptoms before or during the conference.

3 The ZOOM-Events platform: configuration and setting

ZOOM-events is a platform that allows hosting large-scale online events with multiple sessions and features. It is based on the ZOOM software and shares many of its functionalities.

INFN (Italian National Institute for Nuclear Physics) purchased a ZOOM-events license for €5,500, covering six months of usage, which allowed hosting events that lasted up to six days and supported up to 12 parallel sessions running simultaneously.

To access the platform, participants need to authenticate themselves using their ZOOM username and password, SSO, or their Apple, Google, or Facebook accounts. The first time they access the platform, they need to register for the event using a ticketing system (Fig. 4). After that, they can enter the event lobby (Fig. 3, where they can see and join the virtual rooms of the different events, such as parallel or plenary sessions or the sponsor gallery.

All participants signed up to the conference through an INDICO instance [5] and, after paying the corresponding fee, the received by email the ZOOM-events ticket and detailed instructions on how to sign in.

Access to the ZOOM-events platform was restricted to conference participants only: starting from the registration information collected by the INDICO platform, we collected the emails addresses of all the participants, and we stored them in a CSV file that has been used to enable each participants in the ZOOM-events.

Some participants changed their plans at the last minute or even during the conference, and requested a refund for the fee difference. To ensure fairness, we checked the accesses of the attendees and verified that they had paid the correct amount. We also offered daily,

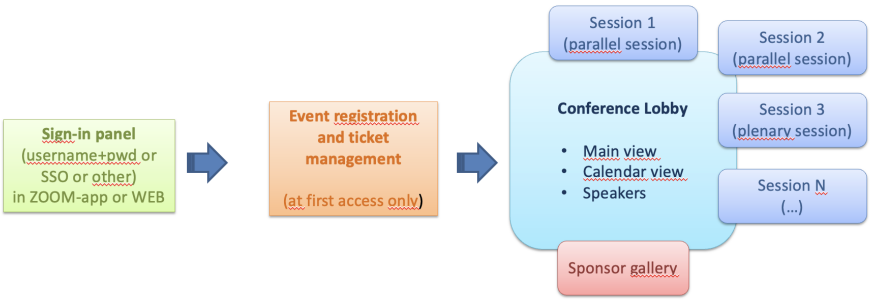

Figure 2. Schematic view of the ZOOM-events layout

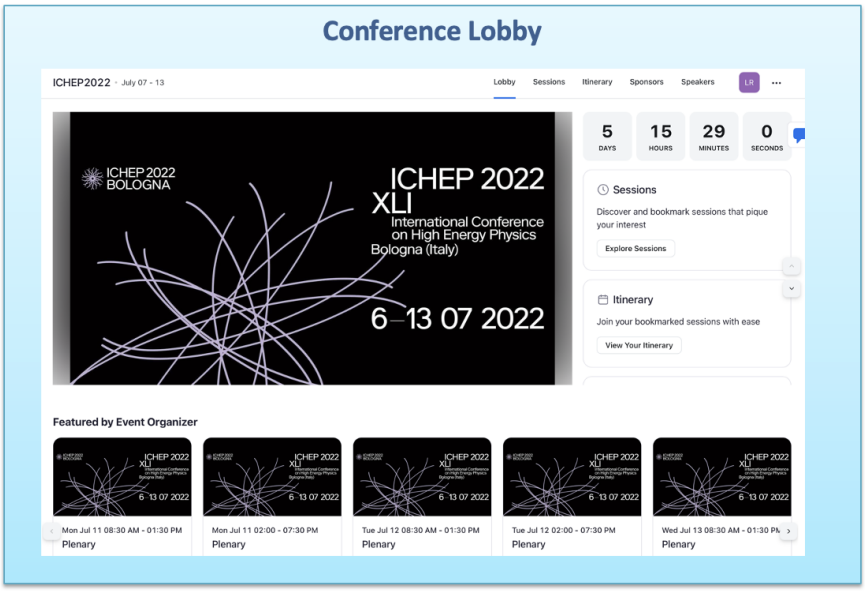

Figure 3. Snapshot of the ICHEP 2022 virtual lobby

around 50 free RESERVED tickets for special or problematic cases, such as technical issues or financial difficulties. The online conference was open to everyone, regardless of their location, as there was no geo-blocking for the remote connection.

However, there was a problem with the authentication process, because some participants had different credentials for INDICO and ZOOM, or had a mismatch between their SSO username and email. In those cases, they had to communicate their usual ZOOM account to be added to the access list manually. This was a hard work that required handling more than 600 emails in one week, promptly. A possible solution for this problem would be to integrate ZOOM and INDICO authentication systems, which has been suggested to the ZOOM developers.

3.1 Parallel and Plenary sessions configuration

The conference spanned seven days, with a break day in the middle (Sunday 10^{th} July) for excursions and some satellite meetings. The first three days (from 7^{th} to 9^{th} July) featured 17 parallel sessions, with 12 running at the same time, as well as two special events. After the break day, the last three days (from 11^{th} to 13^{th} July) consisted of plenary sessions, which took place in the main auditorium.

For the parallel sessions, each session had its own dedicated ZOOM-events session that was created in advance for a specific time window. A common account (ichep2022_XX) was used to manage the ZOOM sessions, such as starting and ending them. This account also had the *speakerrole*, which allowed to control the audio and video settings of the participants. The parallel session convenors also had the speaker role, and they knew the credentials to access and manage their rooms. They received a check-list of instructions for online session management. The convenors were responsible for inviting the remote speakers to unmute their microphones and share their slides. The convenors also drove the slide shows from

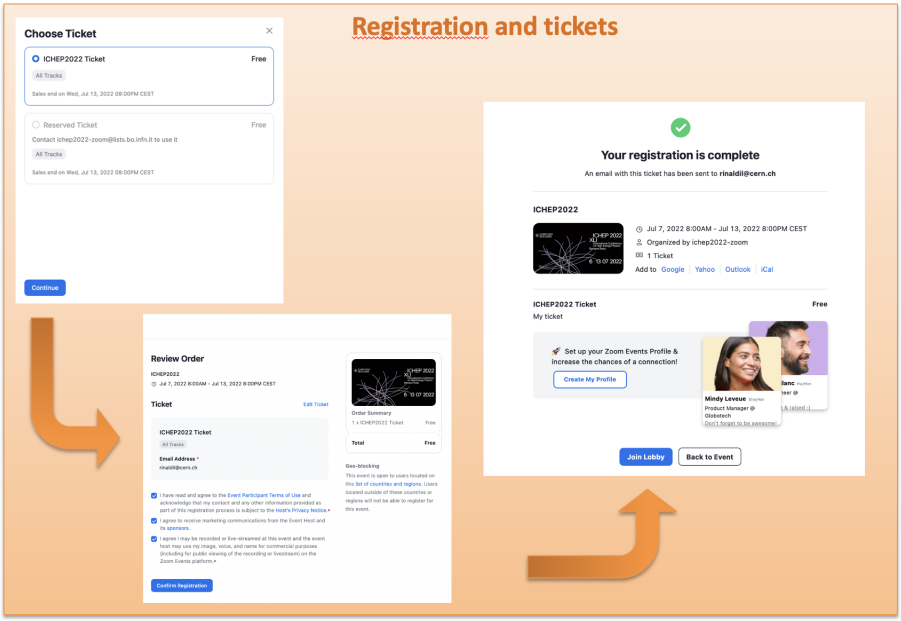

Figure 4. Schematic view of registration and ticketing workflow

the real rooms, where they had a projector and a screen. All other participants joined the sessions with muted microphones and cameras off, and they could only watch and listen to the speakers.

For the plenary sessions, there were six dedicated ZOOM-events sessions that were created for the morning and afternoon sessions of 11^{th} and 13^{th} July. A common account (ichep2022_00) was used to manage these sessions as well. The plenary sessions were configured in broadcast modality, which meant that the connected participants could not use their microphones or cameras, but they could write questions on the chat. The remote speakers were granted the speaker role, which allowed them to share their audio and video with the audience. The speakers could also share their slides from their own devices.

3.2 Survey results on online participation

The survey [3] that was distributed soon after the conference received more than 500 responses from the attendees. The feedback was generally very positive, especially regarding the online participation. The results of the survey on online participation and online technical support are shown in figures 5 and 6.

3.3 Advice for an optimal use

ZOOM-events is a well designed tool for online or hybrid conferences with a large number of attendees, as we learned from the ICHEP 2022 conference. Organizers can tailor their license to their event's size, duration, and sessions. They can easily set up their event by configuring each session through a web interface or a CSV file, which covers the speakers' names, the sessions' schedule, and other details. However, organizers should pay attention to

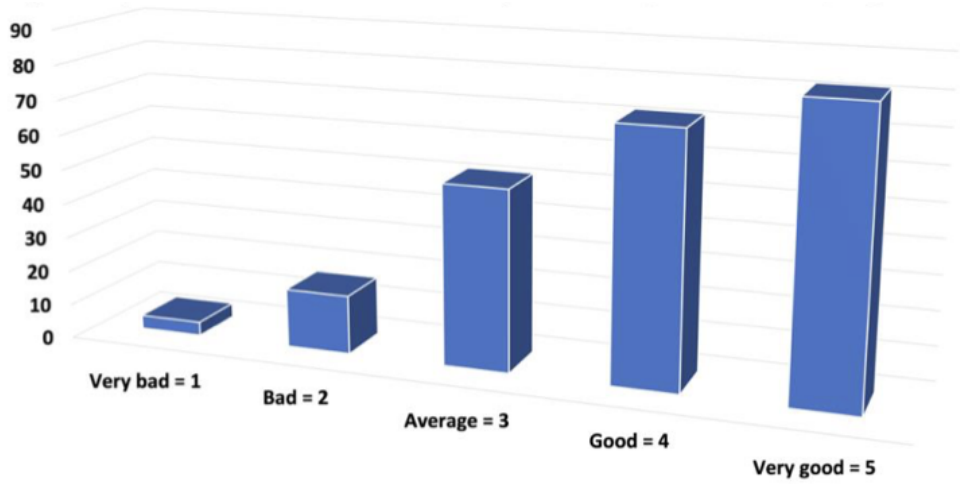

Figure 5. Online participation: evaluate the experience of the remote participation with ZOOM-events

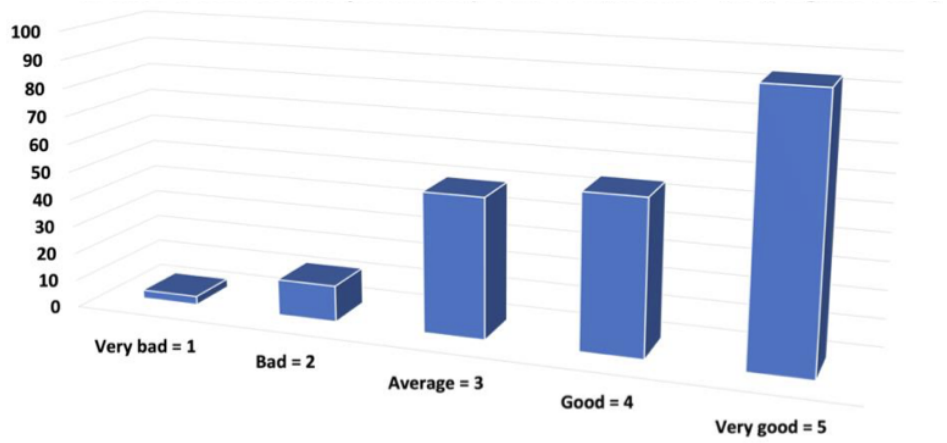

Figure 6. Online participation: evaluate the support for techical problems related to the ZOOM-events platform

the ticketing system, especially for restricted events. The attendees must register and access the event with the same email address. If organizers use other platforms to manage their conference (such as INDICO), they must ensure that the credentials are consistent on both systems, otherwise the attendees will not be able to join.

4 Conclusions

The ICHEP 2022 conference was a hybrid event that took place in Bologna, Italy, from 7^{th} to 13^{th} July 2022. The conference offered the possibility of remote attendance with the ZOOM-events platform, which enabled online participants to join the plenary and parallel sessions, as well as interact with the speakers and other attendees.

The choice of the full-hybrid modality posed a significant challenge for the conference organizers, who had to configure and manage the ZOOM-events platform and provide user support for online participants. The organizers had to create dedicated ZOOM-events sessions for each session, assign speaker roles to the convenors and remote speakers, and ensure the smooth running of the sessions.

Despite these difficulties, the conference was a great success, with about 1,500 participants from 50 countries. The online participation was excellent, with high attendance rates and active engagement from the participants. The feedback from the participants was very positive, indicating a high level of satisfaction with the quality of the the online platform and technical support.

References

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[2] https://events.zoom.us/

[3] https://www.ichep2022.it/wp-content/uploads/2023/01/ICHEP2022_FinalReport.pdf

[4] https://covid19.infn.it

[5] https://agenda.infn.it/event/28874/